

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
CHARLESTON DIVISION

B.P.J., by her next friend and mother, HEATHER JACKSON,

Plaintiff,

v.

WEST VIRGINIA STATE BOARD OF
EDUCATION, HARRISON COUNTY BOARD
OF EDUCATION, WEST VIRGINIA
SECONDARY SCHOOL ACTIVITIES
COMMISSION, W. CLAYTON BURCH in his
official capacity as State Superintendent, and
DORA STUTLER in her official capacity as
Harrison County Superintendent,

Defendants.

Civil Action No. 2:21-cv-00316

Hon.

**DECLARATION OF
JOSHUA D. SAFER, MD, FACP, FACE**

1. I have been retained by counsel for Plaintiffs as an expert in connection with the above-captioned litigation.

2. The purpose of this declaration is to offer my expert opinion on: (1) the Endocrine Society's Guidelines for providing gender-affirming care to transgender people; (2) the difficulties that have arisen when athletic associations have attempted to define a person's sex for purposes of competing in elite women's sports; (3) the current policy of elite athletic organizations in limiting eligibility to compete in women's sports based on serum testosterone levels; (4) whether the available scientific evidence supports West Virginia's assertion that "classification of athletic teams according to" an "individual's reproductive biology and genetics at birth sex" "is necessary to promote equal athletic opportunities for the female sex."

3. I have knowledge of the matters stated in this declaration and have collected and cite to relevant literature concerning the issues that arise in this litigation in the body of this declaration and in the attached bibliography.

4. In preparing this declaration, I relied on my scientific education and training, my research experience, and my knowledge of the scientific literature in the pertinent fields. The materials I have relied upon in preparing this declaration are the same types of materials that experts in my field of study regularly rely upon when forming opinions on the subject. I may wish to supplement these opinions or the bases for them as a result of new scientific research or publications or in response to statements and issues that may arise in my area of expertise.

PROFESSIONAL BACKGROUND

5. I am a Staff Physician in the Endocrinology Division of the Department of Medicine at the Mount Sinai Hospital and Mount Sinai Beth Israel Medical Center in New York, NY. I serve as Executive Director of the Center for Transgender Medicine and Surgery at Mount Sinai. I also hold an academic appointment as Professor of Medicine in Mount Sinai's Icahn School of Medicine. A true and correct copy of my CV is attached hereto as Exhibit A.

6. I have been Board Certified in Endocrinology, Diabetes and Metabolism by the American Board of Internal Medicine since 1997.

7. I graduated from the University of Wisconsin in Madison with a Bachelor of Science degree in 1986. I earned my Doctor of Medicine degree from the University of Wisconsin in 1990. I completed intern and resident training at Mount Sinai School of Medicine, Beth Israel Medical Center in New York, New York from 1990 to 1993. From 1993 to 1994, I was a Clinical Fellow in Endocrinology at Harvard Medical School and Beth Israel Deaconess Medical Center in Boston, Massachusetts. I stayed at the same institution, serving as a Clinical and Research Fellow in Endocrinology under Fredric Wondisford, from 1994 to 1996.

8. Since 1997, I have evaluated and treated patients along with conducting research in endocrinology. Since 2004, my patient care and research has been focused on the

medicine/science specific to transgender people. I have led several other programs either in transgender medicine or in general endocrinology. In particular, I served as the Medical Director of the Center for Transgender Medicine and Surgery, Boston Medical Center, Boston, MA (2016-2018); as the Director of Medical Education, Endocrinology Section, Boston University School of Medicine, Boston, MA (2007-2018); as the Program Director for Endocrinology Fellowship Training, Boston University Medical Center, Boston, MA (2007-2018); and as Director of the Thyroid Clinic, Boston Medical Center, Boston, MA (1999-2003).

9. I have authored or coauthored over 100 peer-reviewed papers including many critical reviews; textbook chapters; and case reports in endocrinology and transgender medicine.

10. Among my publications are the latest review of transgender medicine in the New England Journal of Medicine and the latest review of transgender medicine in the Annals of Internal Medicine. *See* Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460; Safer JD, Tangpricha V. Care of the transgender patient. *Ann Intern Med* 2019; 171:ITC1-ITC16. I am also a co-author of the sections of UpToDate that relate to gender-affirming hormone treatment for transgender people. UpToDate is an evidence-based, physician authored, on-line medical guide and is currently the most widely used such guide among medical providers.

11. I was the inaugural President of the United States Professional Association for Transgender Health (“USPATH”). I am also Secretary and Co-Chair of the Steering Committee of TransNet, the International Consortium for Transgender Medicine and Health Research. I have served in several other leadership roles in professional societies related to endocrinology and transgender health. These societies include the Alliance of Academic Internal Medicine, the American College of Physicians Council of Subspecialty Societies, the American Board of

Internal Medicine, the Association of Program Directors in Endocrinology and Metabolism, and the American Thyroid Association.

12. Since 2014, I have held various roles as a member of the World Professional Association for Transgender Health (“WPATH”), the leading international organization focused on transgender health care. WPATH has approximately 2,000 members throughout the world and is comprised of physicians, psychiatrists, psychologists, social workers, surgeons, and other health professionals who specialize in health care for transgender people. From 2016 to the present, I have served on the Writing Committee for Standards of Care for the Health of Transsexual, Transgender, and Gender Nonconforming People.

13. I have served in various roles as a member of the Endocrine Society since 2014. I served on a nine-expert Task Force to develop the Endocrine Treatment of Transgender Persons Clinical Practice Guideline from 2014 to 2017. The experts on the Task Force which included me, a methodologist, and a medical writer co-authored the “Endocrine Treatment of Gender-Dysphoria/Gender Incongruent Persons: An Endocrine Society Clinical Practice Guideline,” (“Endocrine Society Guidelines”), available at <https://academic.oup.com/jcem/article/102/11/3869/4157558>.

14. I have served as a Transgender Medicine Guidelines Drafting Group Member for the International Olympic Committee (“IOC”) since 2017.

15. Since 2019, I have also served as a drafting group member of the transgender medical guidelines of World Athletics, formerly known as the International Amateur Athletic Federation (“IAAF”).

16. I have not previously testified as an expert witness in either deposition or at trial. I am being compensated at an hourly rate of \$250 per hour for preparation of expert declarations

and reports, and \$400 per hour for time spent preparing for or giving deposition or trial testimony. My compensation does not depend on the outcome of this litigation, the opinions I express, or the testimony I provide.

RELEVANT MEDICAL AND SCIENTIFIC BACKGROUND

17. “Gender identity” is the medical term for a person’s internal, innate sense of belonging to a particular sex. *See* Endocrine Society Guidelines, Tbl.1 *and* Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460, Tbl.1.

18. Although the detailed mechanisms are unknown, there is a medical consensus that there is a significant biologic component underlying gender identity. Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460; Safer JD, Tangpricha V. Care of the transgender patient. *Ann Intern Med* 2019; 171:ITC1-ITC16. A person’s gender identity is durable and cannot be changed by medical intervention.

19. “Gender” is an imprecise term that can cause confusion and should be avoided for the sake of clarity. The term “gender” is sometimes used interchangeably with the term “sex.” In addition, the term “gender” is sometimes used as shorthand for “gender identity” and sometimes used as shorthand for “gender roles” and “gender expression.” But “gender identity,” “gender roles,” and “gender expression” are different things.

20. Gender roles are behaviors, attitudes, and personality traits that a society (in a given culture and historical period) designates as masculine or feminine and/or that society associates with or considers typical of the social role of men or women. *See* Endocrine Society Guidelines Tbl.1. The convention that girls wear pink and have longer hair, or that boys wear blue and have shorter hair, are examples of socially constructed gender roles from a particular culture and historical period.

21. By contrast, “gender identity” does not refer to a set of socially contingent behaviors, attitudes, or personality traits that a society designates as masculine or feminine. It is an internal and largely biological phenomenon.

22. Gender expression is how a person communicates gender identity both internally and to others. *See* Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460, Tbl.1. For example, a person with a female gender identity might express her identity through typically feminine outward expressions of gender roles like wearing longer hair or more typically feminine clothing.

23. The phrase “biological sex” is an imprecise term that can cause confusion. A person’s sex encompasses the sum of several different biological attributes, including sex chromosomes, certain genes, gonads, sex hormone levels, internal and external genitalia, other secondary sex characteristics, and gender identity. Those attributes are not always aligned in the same direction. *See* Endocrine Society Guidelines; Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460.

24. Before puberty, boys and girls have the same levels of circulating testosterone. After puberty, the typical range of circulating testosterone for non-transgender women is similar to before puberty (<1.7 nmol/L), and the typical range of circulating testosterone for non-transgender men is 9.4-35 nmol/L. *See* Endocrine Society Guidelines (p 3888) *and* Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019.

25. On average, non-transgender boys and men as a group have better performance outcomes in most athletic competitions when compared to non-transgender girls and women as a group. Based on research comparing non-transgender boys and men with non-transgender girls and women before, during, and after puberty, there is a medical consensus that the difference in

testosterone is generally the primary known driver of differences in athletic performance between elite male athletes and elite female athletes. *See Handelsman DJ, et al. Circulating testosterone as the hormonal basis of sex differences in athletic performance. Endocrine Reviews* 2018; 39:803-829, (p 803).

26. Even though there are ranges of testosterone that are considered typical for non-transgender men and women, many non-transgender women have testosterone levels outside the typical range.

a. Approximately 6% to 10% of women have a condition called polycystic ovary syndrome (PCOS), which can raise women's testosterone levels up to 4.8 nmol/L.

b. Some elite female athletes have "46,XY DSDs," a group of conditions where individuals have XY chromosomes but are born with typically female external genitalia and assigned a female sex at birth. Among individuals with 46,XY DSD some may have inactive testosterone receptors (a syndrome called "complete androgen insensitivity syndrome, CAIS") which means they don't respond to testosterone despite very high levels. Usually, these individuals have female gender identity and have external genitalia that are typically female. They do not develop the physical characteristics associated with typical male puberty.

c. Other individuals with 46,XY DSD may have responsive testosterone receptors. These individuals may have female gender identity but at puberty they may start to develop higher levels of testosterone along with secondary sex characteristics that are typically masculine.

**WORLD ATHLETICS AND IOC POLICIES
FOR WOMEN WITH HYPERANDROGENISM**

27. World Athletics is the international governing body for the sport of track-and-field athletics. Beginning in 2011, World Athletics (then known as IAAF) began requiring that women with elevated levels of circulating testosterone lower their levels of testosterone below a threshold amount in order to compete in elite international women's sports competitions. Under the 2011 regulations, women with hyperandrogenemia (defined as serum testosterone levels above the normal range) were allowed to compete only if they demonstrated that they had testosterone levels below 10 nmol/L or that they had CAIS, preventing their bodies from responding to testosterone.

28. In 2014, the Court of Arbitration for Sport (CAS) suspended the IAAF regulations. CAS accepted the IAAF position that testosterone is a key factor for competitive athletic advantage but asked the IAAF to provide additional evidence to demonstrate that differences were relevant at the levels of testosterone being considered for determination of eligibility in the women's category of competition.

29. The IAAF then issued revised regulations in 2018 after a study that showed a significant improvement in athletic performance among women with higher testosterone levels for some sports. *See* Bermon S, Garnier P-Y. Serum androgen levels and their relation to performance in track and field: mass-spectrometry results from 2127 observations in male and female elite athlete. *Br J Sports Med* 2017; 51:1309-1314.

30. The revised regulations lowered the maximum testosterone threshold to 5 nmol/L.

31. The revised regulations were upheld by the Court of Arbitration for Sport in 2019.

**WORLD ATHLETICS AND IOC POLICIES FOR
WOMEN WHO ARE TRANSGENDER**

32. Formal eligibility rules for the participation of transgender women in the Olympics were published in 2003. The rules required that transgender women athletes could compete in women's events only if they had genital surgery, a gonadectomy (*i.e.*, removal of the testes), and legal documentation of female sex.

33. However, many women who are transgender are treated with medicines alone and don't have gonadectomy. As well, many jurisdictions do not have systems to document the sex of transgender people. In some jurisdictions, being transgender is illegal, and disclosure that someone is transgender can be unsafe.

34. Therefore, in 2015, the IOC adopted new guidance modeled after the IAAF's 2011 regulations for non-transgender women with hyperandrogenism. Under the new IOC guidance, women who are transgender must demonstrate that their total testosterone level in serum has been below 10 nmol/L for at least one year prior to competition. The 10 nmol/L threshold was the same threshold set by the IAAF's 2011 regulations.

35. In 2019, the IAAF adopted regulations based on the IOC guidance allowing women who are transgender to participate if they have lowered their total testosterone level in serum beneath a particular threshold for at least a year before competition. Unlike the IOC, the IAAF set the threshold at 5 nmol/L, which was the same threshold set by the IAAF's 2018 regulations for non-transgender women with hyperandrogenism that had been upheld by the CAS when contested.

36. The IOC and IAAF rules are consistent with the Endocrine Society Guidelines for the treatment of women who are transgender, which recommend that hormone therapy target circulating testosterone levels to a typical female range at or below 1.7 nmol/L (Endocrine

Society Guidelines, p. 3887) and with the study of testosterone levels achieved in practice by medically treated women who are transgender (Liang JJ, et al. Testosterone levels achieved by medically treated transgender women in a United States endocrinology clinic cohort. *Endocrine Practice* 2018; 24:135-142).

PARTICIPATION OF GIRLS AND WOMEN WHO ARE TRANSGENDER IN THE SCHOLASTIC CONTEXT

37. The policies developed by World Athletics and the IOC for transgender athletes were based on the particular context of elite international competition. Not all of the same considerations apply in other contexts.

38. Most of the athletes competing in elite international competitions have already completed puberty. But in middle school and high school, athletes' ages typically range from 11-18, with different athletes in different stages of pubertal development. Increased testosterone begins to affect athletic performance at the beginning of puberty, but those effects continue to increase each year of puberty until about age 18, with the full impact of puberty resulting from the cumulative effect of each year. As a result, a 14, 15, or 16-year old has experienced less cumulative impact from testosterone than a 17 or 18-year old. The concerns that animated the World Athletics and IOC policies are, therefore, more attenuated at the high school or junior high school level.

39. There are also important differences between elite international competition and competition at the college level. The National College Athletics Association allows women who are transgender to participate on the same teams as other women after one year of testosterone suppression. Unlike the IOC and World Athletics policies, the NCAA policy does not require ongoing testosterone testing, which is required at the elite levels. Under the NCAA policy, which

has been in effect since 2011, transgender student-athletes certify that they have been on hormone therapy for a period of one year.

40. The World Athletics and IOC policies are more stringent because those organizations must develop policies that cannot be manipulated by governments that are not bound by the rule of law. For example, there have been many well-known examples of state-sponsored doping scandals. The Russian Olympic team is currently banned from international competition due to an organized doping effort. Also, there have been cases where governments have issued fraudulent birth certificates and identification documents. In 2000, Yang Yun was a medal winner in Gymnastics from the Chinese team. She later reported that she was 14-years-old at the time in violation of the rule that all athletes for her events had to be at least 16-years-old. In 2008, He Kexin was 14-years-old when participating in Gymnastics for the Chinese team in violation of the same rule that athletes be at least 16-years-old in those events. A new passport for Ms. He had hastily appeared 6 months prior to the Olympic Games that year with a new birth year so that Ms. He could qualify.

41. To confront the significant problem of state-sponsored cheating, World Athletics and the IOC have to develop eligibility criteria for transgender athletes that can be independently verified to prevent manipulation by non-transgender athletes, and that do not depend on the gender marker listed on identification documentation issued by an athlete's home country. Those concerns do not apply to scholastic athletic competitions in the United States. Scholastic athletic associations can rely on school records to show that an athlete is a girl who is transgender and has socially transitioned to live consistently with her gender identity as a girl.

42. The eligibility criteria for World Athletics and the IOC were also created as part of a system in which elite athletes in international competitions are already regulated and

monitored in some circumstances like for doping. Within that context, testing female athletes' levels of testosterone is somewhat analogous to the types of restrictions and invasion of privacy that already exist.

43. By contrast, in athletic competitions that are not as heavily regulated and monitored, it is hard to justify singling out girls who are transgender, girls with 46,XY DSDs, or girls who may just appear more typically masculine for special testosterone requirements that impose a significant additional burden.

WEST VIRGINIA'S HB 3293

44. There is no medical justification for West Virginia's categorical exclusion of girls who are transgender from participating in scholastic athletics on the same teams as other girls.

45. HB 3293 states that "[c]lassification of teams according to biological sex is necessary to promote equal athletic opportunities for the female sex." The law defines "biological sex" as "an individual's physical form as a male or female based solely on the individual's reproductive biology and genetics at birth."

46. West Virginia's definition of "biological sex" does not reflect any medical understanding of that ambiguous term. As noted above, a person's sex encompasses the sum of several different biological attributes, including sex chromosomes, certain genes, gonads, sex hormone levels, internal and external genitalia, other secondary sex characteristics, and gender identity. Those attributes are not always aligned in the same direction. *See* Endocrine Society Guidelines; Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460. For example, if West Virginia defines "biological sex" solely based on "reproductive biology and genetics at birth" it is not clear how West Virginia would define the "biological sex"

of children with “46,XY DSDs,” who have XY chromosomes but typically female external reproductive anatomy.

47. Even as applied to people without intersex characteristics or 46,XY DSDs, the statutory definition of “biological sex” is inconsistent with West Virginia’s stated goal of “promot[ing] equal athletic opportunities for the female sex.” A person’s genetic makeup and internal and external reproductive anatomy are not useful indicators of athletic performance and have not been used in elite competition for decades.

48. Age-grade competitive sports records show minimal or no differences in athletic performance between non-transgender boys and non-transgender girls before puberty. *See* Handelsman DJ, *et al.* Circulating hormonal basis of sex differences in athletic performance. *Endocrine Reviews* 2018; 39:803-29, p.812. There is a scientific consensus that performance advantage observed for non-transgender men compared to non-transgender women is due to circulating testosterone levels that typically diverge significantly between non-transgender males and females starting at puberty. *Id.* In other words, non-transgender men and boys as a group perform better than non-transgender women and girls as a group because of circulating testosterone—not because of their “reproductive biology and genetics at birth.”

49. By excluding girls who are transgender based on “biological sex,” and defining that term to mean “reproductive biology and genetics at birth,” West Virginia prevents a girl who is transgender from participating on girls’ teams even if she is pre-pubertal, or receiving puberty blockers, or initiated gender-affirming hormone therapy without going through endogenous puberty. These girls never experience the effects of high levels of testosterone and accompanying physiological changes. Rather, they go through puberty with the same levels of

hormones as other girls and develop typically female physiological characteristics, including muscle mass and bone structure.

50. Girls and women who are transgender and who do not go through endogenous puberty are similarly situated to women with XY chromosomes who have complete androgen insensitivity syndrome. It has long-been recognized that women with CAIS have no athletic advantage simply by virtue of having XY chromosomes. *See also* Handelsman DJ, *et al.* Circulating testosterone as the hormonal basis of sex differences in athletic performance. *Endocrine Reviews* 2018; 39:803-29, p .820 (summarizing evidence rejecting hypothesis that physiological characteristics are driven by Y chromosome).

51. Even as applied to girls and women who are transgender and who have gone through endogenous puberty, HB 3293 is dramatically out of step with even the most stringent policies of elite international athletic competitions. Unlike the policies of the IOC, World Athletics, or the NCAA, HB 3293 excludes girls and women who are transgender from participating on girls' and women's sports teams even if they have suppressed their circulating levels of testosterone through gender-affirming hormone therapy.

52. Some critics of the IOC, World Athletics, and NCAA policies have speculated that lowering the level of circulating testosterone does not fully mitigate the athletic advantage derived from endogenous puberty. But there is no basis to assert with any degree of confidence that this hypothesis is true. Based on the limited data available, it is equally or more plausible to hypothesize that women who are transgender could be at a net *disadvantage* after receiving gender affirming hormone therapy, as compared to non-transgender women.

53. For example, transgender women who go through typically male puberty will tend to have larger bones than non-transgender women, even after receiving gender-affirming

hormone therapy. But larger bones may be a *disadvantage* for transgender women who have typically female levels of circulating testosterone. Muscle mass will be decreased with the shift to female levels of circulating testosterone. Having larger bones without corresponding levels of testosterone and muscle mass would mean that a runner has a bigger body to propel with less power to propel it.

54. Similarly, in a sport where athletes compete in different weight classes (*e.g.* weight lifting), the fact that a transgender woman has bigger bones may be a disadvantage because her ratio of muscle-to-bone will be much lower than the ratio for other women in her weight class who have smaller bones.

55. There are only two studies examining the effects of gender-affirming hormone therapy on the athletic performance of transgender female athletes. The first is a small study of eight long-distance runners who are transgender women. The study showed that after undergoing gender-affirming medical intervention, which included lowering their testosterone levels, the athletes' performance was reduced so that their performance when compared to non-transgender women was proportionally the same as their performance had been before treatment relative to non-transgender men. *See Harper J. Race times for transgender athletes. Journal of Sporting Cultures and Identities* 2015; 6:1-9.

56. A more recent study retrospectively reviewed the military fitness test results of 46 transgender women in the U.S. Air Force before and after receiving gender-affirming hormone therapy. These authors found that any advantage transgender women had over non-transgender women in performing push-ups and sit-ups was negated after 2 years. The study also found that before beginning gender affirming hormone therapy, transgender women completed the 1.5 mile run 21% faster on average than non-transgender women; and after 2 years of gender-affirming

hormone therapy, transgender women completed the 1.5 mile run 12% faster on average than non-transgender women. *See* Roberts TA, Smalley J, Ahrendt D. Effect of gender affirming hormones on athletic performance in transwomen and transmen: implications for sporting organisations and legislators. *Br J Sports Med*. 2020.

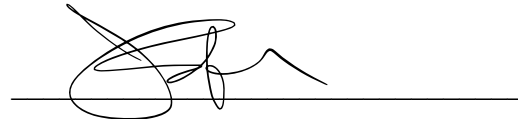
57. Neither of these limited studies proves there are meaningful athletic advantages for transgender women after receiving gender-affirming hormone therapy, which could only be shown by longitudinal transgender athlete case-comparison studies that control for variations in hormonal exposure and involve numerous indices of performance. Moreover, the ability to perform push-ups and sit-ups or to run 1.5 miles does not necessarily translate into an athletic advantage in any particular athletic event. Because different sports require different types of physical performance, the studies suggest that the existence and extent of a performance advantage may vary from sport to sport and should not be subject to a categorical across-the-board rule.

58. Even if evidence were eventually to show that on average transgender women have some level of advantage compared to average non-transgender women, those findings would have to be placed in context of all the other intra-sex genetic variations among athletes that can enhance athletic performance among different women or different men. In the academic literature these are referred to as “performance enhancing polymorphisms” or “PEPs.” A PEP is a variation in the DNA sequence that is associated with improved athletic performance. For example, variations in mitochondrial DNA have been associated with greater endurance capacity and greater mitochondrial density in muscles. Other PEPs are associated with blood flow or muscle structure. *See* Ostrander EA, et al. Genetics of athletic performance. *Annu Rev Genomics Hum Genet* 2009; 10:407-429. These variations have proven to have a significant

impact on athletic ability, unlike bone or lung size in transgender women. There is no inherent reason why transgender women's physiological characteristics related to athletic performance should be treated as any more of an "unfair" advantage than the advantages that already exist among different women athletes as a result of performance enhancing polymorphisms.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on 5/10/2021

A handwritten signature in black ink, appearing to read 'J. Safer', is written over a horizontal line.

Joshua D. Safer, MD, FACP, FACE

BIBLIOGRAPHY

Handelsman DJ, et al. Circulating testosterone as the hormonal basis of sex differences in athletic performance. *Endocrine Reviews* 2018; 39:803-829.

Harper J. Race times for transgender athletes. *Journal of Sporting Cultures and Identities* 2015; 6:1-9.

Hembree WC, et al. Endocrine treatment of gender-dysphoria/gender incongruent persons: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab* 2017; 102: 3869–3903.

Ostrander EA, et al. Genetics of athletic performance. *Annu Rev Genomics Hum Genet* 2009; 10:407-429.

Roberts TA, et al. Effect of gender affirming hormones on athletic performance in transwomen and transmen: implications for sporting organisations and legislators. *Br J Sports Med*. 2020; 0:1–7. doi:10.1136/bjsports-2020-102329

Rogol AD, Pieper LP. The interconnected histories of endocrinology and eligibility in women's sports. *Horm Res Paediatr* 2018; 90:213–220.

Safer JD, Tangpricha V. Care of the transgender patient. *Ann Intern Med* 2019; 171:ITC1-ITC16.

Safer JD, Tangpricha V. Care of transgender persons. *N Engl J Med* 2019; 381:2451-2460.

IN THE UNITED STATES DISTRICT COURT
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CHARLESTON DIVISION

B.P.J., by her next friend and mother, HEATHER JACKSON,

Plaintiff,

v.

WEST VIRGINIA STATE BOARD OF
EDUCATION, HARRISON COUNTY
BOARD OF EDUCATION, WEST VIRGINIA
SECONDARY SCHOOL ACTIVITIES
COMMISSION, W. CLAYTON BURCH in his
official capacity as State Superintendent, and
DORA STUTLER in her official capacity as
Harrison County Superintendent,

Defendants.

Civil Action No. 2:21-cv-00316

Hon.

DECLARATION OF HEATHER JACKSON

I, Heather Jackson, pursuant to 28 U.S.C. § 1746, declare as follows:

1. I make this declaration of my own personal knowledge, and, if called as a witness, I could and would testify competently to the matters stated herein.

2. I am 53 years old. My husband and I are the parents of two sons, ages 20 and 13, and an 11-year-old daughter. We have been married for almost 21 years. We live in Lost Creek, West Virginia.

3. Our daughter's name is B.P.J. My daughter and I have a very deep connection and I believe she knows that she can come to me for anything—I love her very much.

4. I am fiercely protective of B.P.J. As her mother, I want to see her be able to achieve all of her dreams.

5. B.P.J. is bright and studious; she makes “straight As” and loves math and science.

6. B.P.J. is also transgender. B.P.J. knew from a very young age that “she didn’t want her boy parts.” She never wanted to be naked for bathing because she was deeply

uncomfortable with and did not want to see certain parts of her body. B.P.J. also did not like standing up to urinate. She would often ask me a lot of questions about my own body and about why our bodies were physically different, if we were both girls.

7. As a child, B.P.J. also presented differently than my other children, both of whom are boys. At or around the age of four, B.P.J. started asking and was allowed to play dress-up in my clothes around our home. Whenever B.P.J. was provided with the opportunity to pick out her clothes or toys, she always went straight for the “girly” items. I knew this was not a “phase” for her, and that there was something different happening.

8. When B.P.J. told us that she is a girl and wants to be addressed as a girl, I was not surprised because I spend so much time with her.

9. Because B.P.J. and I have such an open and communicative relationship, we would have conversations about how she was feeling. The more we talked and the more comfortable she became with expressing how she was feeling and who she is, the more she was able to clearly communicate that she knew she was a girl.

10. By the time B.P.J. was in the third grade she had chosen her name and was living as herself at home. Towards the end of that school year, B.P.J. informed her father and me that she did not want to continue going to school “dressed as a boy.” We agreed she could start going to school dressed as herself.

11. In 2019, B.P.J. was diagnosed by Dr. Gerald T. Montano at University of Pittsburgh Medical Center with gender dysphoria.

12. Early in B.P.J.’s social transition, she began seeing a therapist experienced in treating transgender children. In late 2019, when B.P.J.’s gender dysphoria was especially

severe, causing her to be depressed and anxious, her father and I would take her to visit her therapist more often than usual.

13. B.P.J. started puberty-delaying treatment on June 15, 2020 and has been on this treatment for almost a year. She began this care under the treatment of a multidisciplinary team of providers, and continues to see providers with expertise in transgender children.

14. B.P.J. is young and just beginning to explore her interest in sports.

15. During the 2019-20 and 2020-21 school years, B.P.J. was a member of the cheerleading team for the Bridgeport Youth Football League. All members of that team were girls. Even before B.P.J. started cheering with her team, she spent a year learning all the cheer team's routines from the stands. When B.P.J. received her girls' cheer uniform, she was glowing. B.P.J. always wanted me to be in the front row of her competitions. During the 2019-20 season, for the first time ever, B.P.J.'s cheer team placed at a cheer competition.

16. Being on the cheer team dramatically increased B.P.J.'s confidence and happiness. B.P.J. was supported and accepted by the other girls on her team and her coaches. B.P.J.'s participation on her cheer team taught her the importance of responsibility, trust, and team building. B.P.J. is especially proud to have served as part of the base for her cheer team's pyramids because it demonstrated to her that her teammates trusted and relied on her in order to complete their routine.

17. Participating in cheer was a meaningful way for B.P.J. to learn responsibility. As her mother, I can preach about the importance of responsibility, but her position on her cheer team provided her with the real-life experience of having others rely on her to attend practice and participate, and this has helped her understand responsibility in a deeply personal and meaningful way.

18. Although B.P.J. enjoyed cheerleading, she joined the cheer team in part because it was one of the only sports offered to her grade level that she was interested in participating in. When B.P.J. begins junior high, however, she wants to try out for Bridgeport Middle School's girls' cross-country and track teams. I think that B.P.J. may also wish to try out for basketball and/or volleyball, in addition to trying out for and participating on the girls' cross-country and track teams.

19. From past experience with both of my sons, I believe that the cross-country team starts practicing in July of 2021. In the past, to be eligible to try out for the team when school starts in August, students must have already participated in 14 practices. If B.P.J. is unable to begin practicing with other girls in July, she will not have enough time to put 14 practices under her belt before try-outs.

20. Having the opportunity to run on the cross-country and track teams is important to B.P.J. because B.P.J. comes from a family of runners. When she was younger, I would take B.P.J. on runs with me through parks and she grew up watching her brothers run on their school teams. B.P.J. sees my medals on our walls from when I run 5Ks, and her brothers' medals, and she wants the opportunity to be able to run and win some for herself. More importantly, she wants a continued sense of belonging and camaraderie like she had with the cheer team.

21. I am so excited for B.P.J. to run and I am truly looking forward to attending her future cross-country and track meets. B.P.J.'s brothers also are both excited for B.P.J. and looking forward to seeing their sister compete.

22. B.P.J. has the support of her family, coaches, instructors, and peers. Our family is very supportive, and my 75-year-old mother, B.P.J.'s grandmother, and step-grandfather are B.P.J.'s biggest supporters.

23. On May 18, 2021, during a meeting with B.P.J.'s new Principal at Bridgeport Middle School, David Mazza, I was informed that because of H.B. 3293, my daughter will not be permitted to participate on the girls' cross-country or track teams this coming school year.

24. Principal Mazza explained to me (apparently based on his incorrect assumption that running on the boys' team is an option for B.P.J.) that the coaches for both the girls' and boys' cross-country teams will need to be informed that my daughter is transgender. Principal Mazza told me that this disclosure is necessary because B.P.J. looks and presents like a female, and it would be confusing for the girls' cross-country coach if she saw one of the girls walking over to the boys' side while the teams were practicing.

25. I am also aware that to try out and participate in the girls' cross-country team, B.P.J. needs to submit a form issued by the West Virginia Secondary School Activities Commission, and completed in part by a physician after a physical exam. A true and correct copy of this form is attached as Exhibit A. The form contains detailed questions about the student's medical history, but does not ask for the student's sex, genetics, or reproductive anatomy.

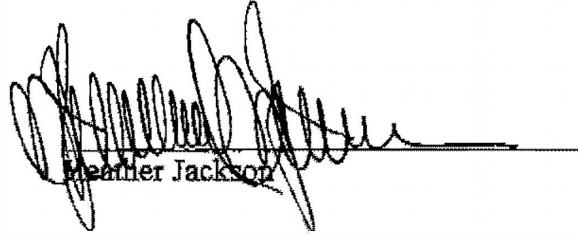
26. B.P.J. is a girl. It makes no sense for her to run with the boys. Forcing B.P.J. to compete on the boys' cross-country or track teams will mean that she will stand out like a sore thumb. B.P.J. knows she is not a boy, and we know she is not a boy.

27. Forcing B.P.J. to run with the boys would completely erase who she is, and it would devastate her. My daughter is simply saying, "Accept me for who I am." Forcing her to run to with the boys is a clear sign to her and others that the state refuses to see her and accept her for the girl that she is.

* * *

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on 5-25-2021



Heather Jackson

EXHIBIT A

WEST VIRGINIA SECONDARY SCHOOL ACTIVITIES COMMISSION

2021

2875 Staunton Turnpike - Parkersburg, WV 26104

ATHLETIC PARTICIPATION/PARENTAL CONSENT/PHYSICIAN'S CERTIFICATE FORM

(Form required each school year on or after May 1st. File in School Administration Office)

ATHLETIC PARTICIPATION / PARENTAL CONSENT

PART I

Name _____ School Year: _____ Grade Entering: _____

Home Address: _____ Home Address of Parents: _____

City: _____ City: _____

Phone: _____ Date of Birth: _____ Place of Birth: _____

Last semester I attended _____ (High School) or (Middle School). We have read the condensed eligibility rules of the WVSSAC athletics. If accepted as a team member, we agree to make every effort to keep up school work and abide by the rules and regulations of the school authorities and the WVSSAC.

INDIVIDUAL ELIGIBILITY RULES

Attention Athlete! To be eligible to represent your school in any interscholastic contest, you:

- _____ must be a regular bona fide student in good standing of the school. (See exception under Rule 127-2-3)
- _____ must qualify under the Residence and Transfer Rule (127-2-7)
- _____ must have earned at least 2 units of credit the previous semester. Summer School may be included. (127-2-6)
- _____ must have attained an overall "C" (2.00) average the previous semester. Summer School may be included. (127-2-6)
- _____ must not have reached your 15th (MS), 19th (HS) birthday before August 1 of the current school year. (127-2-4)
- _____ must be residing with parent(s) as specified by Rule 127-2-7 and 8.
 - _____ unless parents have made a bona fide change of residence during school term.
 - _____ unless an AFS or other Foreign-Exchange student (one year of eligibility only).
 - _____ unless the residence requirement was met by the 365 calendar days attendance prior to participation.
- _____ if living with legal guardian/custodian, may not participate at the varsity level. (127-2-8)
- _____ must be an amateur as defined by Rule 127-2-11.
- _____ must have submitted to your principal before becoming a member of any school athletic team Participation/Parent Consent/Physician Form, completely filled in and properly signed, attesting that you have been examined and found to be physically fit for athletic competition and that your parents consent to your participation. (127-3-3)
- _____ must not have transferred from one school to another for athletic purposes. (127-2-7)
- _____ must not have received, in recognition of your ability as a HS or MS athlete, any award not presented or approved by your school or the WVSSAC. (127-3-5)
- _____ must not, while a member of a school team in any sport, become a member of any other organized team or as an individual participant in an unsanctioned meet or tournament in the same sport during the school sport season (See exception 127-2-10).
- _____ must follow All Star Participation Rule. (127-3-4)
- _____ must not have been enrolled in more than (8) semesters in grades 9 to 12. Must not have participated in more than three (3) seasons while in grades 6-7-8. (Rule 127-2-5).
- _____ qualify under homeschool rule. (Rule 127-2-3.11, 127-2-7.2k, 126-26-3.1.1k)

Eligibility to participate in interscholastic athletics is a privilege you earn by meeting not only the above listed minimum standards but also all other standards set by your school and the WVSSAC. If you have any questions regarding your eligibility or are in doubt about the effect any activity or action might have on your eligibility, check with your principal or athletic director. They are aware of the interpretation and intent of each rule. Meeting the intent and spirit of WVSSAC standards will prevent athletes, teams, and schools from being penalized.

PART II - PARENTAL CONSENT

In accordance with the rules of the WVSSAC, I give my consent and approval to the participation of the student named above for the sport NOT MARKED OUT BELOW:

| | | | | |
|--------------|----------|----------|----------|------------|
| BASEBALL | CROSS | GOLF | SWIMMING | VOLLEYBALL |
| BASKETBALL | COUNTRY | SOCCER | TENNIS | WRESTLING |
| CHEERLEADING | FOOTBALL | SOFTBALL | TRACK | BAND |

MEDICAL DISQUALIFICATION OF THE STUDENT-ATHLETE / WITHHOLDING A STUDENT-ATHLETE FROM ACTIVITY

The member school's team physician has the final responsibility to determine when a student-athlete is removed or withheld from participation due to an injury, an illness or pregnancy. In addition, clearance for that individual to return to activity is solely the responsibility of the member school's team physician or that physician's designated representative.

I understand that participation may include, when necessary, early dismissal from classes and travel to participate in interscholastic athletic contests. I will not hold the school authorities or West Virginia Secondary School Activities Commission responsible in case of accident or injury as a result of this participation. I also understand that participation in any of those sports listed above may cause permanent disability or death. Please check appropriate space: He/She has student accident insurance available through the school (); has football insurance coverage available through the school (); is insured to our satisfaction ().

I also give my consent and approval for the above named student to receive a physical examination, as required in Part IV, Physician's Certificate, of this form, by an approved health care provider as recommended by the named student's school administration.

I consent to WVSSAC's use of the herein named student's name, likeness, and athletically related information in reports of Inter-School Practices or Scrimmages and Contests, promotional literature of the Association, and other materials and releases related to interscholastic athletics.

I have read/reviewed the concussion and Sudden Cardiac Arrest information as available through the school and at WVSSAC.org. (Click Sports Medicine)

Date: _____ Student Signature _____ Parent Signature _____

PART III – STUDENT’S MEDICAL HISTORY

(To be completed by parent or guardian prior to examination)

Name _____ Birthdate ____/____/____ Grade ____ Age ____

Has the student ever had:

Yes No 1. Chronic or recurrent illness? (Diabetes, Asthma, Seizures, etc.)

Yes No 2. Any hospitalizations?

Yes No 3. Any surgery (except tonsils)?

Yes No 4. Any injuries that prohibited your participation in sports?

Yes No 5. Dizziness or frequent headaches?

Yes No 6. Knee, ankle or neck injuries?

Yes No 7. Broken bone or dislocation?

Yes No 8. Heat exhaustion/sun stroke?

Yes No 9. Fainting or passing out?

Yes No 10. Have any allergies?

Yes No 11. Concussion? If Yes _____
Date(s)

Yes No 12. Have any problems with heart/blood pressure?

Yes No 13. Has anyone in your family ever fainted during exercise?

Yes No 14. Take any medicine? List _____

Yes No 15. Wear glasses ____, contact lenses ____, dental appliances ____?

Yes No 16. Have any organs missing (eye, kidney, testicle, etc.)?

Yes No 17. Has it been longer than 10 years since your last tetanus shot?

Yes No 18. Have you ever been told not to participate in any sport?

Yes No 19. Do you know of any reason this student should not participate in sports?

Yes No 20. Have a sudden death history in your family?

Yes No 21. Have a family history of heart attack before age 50?

Yes No 22. Develop coughing, wheezing, or unusual shortness of breath when you exercise?

Yes No 23. (Females Only) Do you have any problems with your menstrual periods.

PLEASE EXPLAIN ANY “YES” ANSWERS OR ANY OTHER ADDITIONAL CONCERNS.

I also give my consent for the physician in attendance and the appropriate medical staff to give treatment at any athletic event for any injury.

SIGNATURE OF PARENT OR GUARDIAN _____ DATE ____/____/____

PART IV – VITAL SIGNS

Height _____ Weight _____ Pulse _____ Blood Pressure _____

Visual acuity: Uncorrected ____/____; Corrected ____/____; Pupils equal diameter: Y N

PART V – SCREENING PHYSICAL EXAM

This exam is not meant to replace a full physical examination done by your private physician.

Mouth:

Appliances Y N

Missing/loose teeth Y N

Caries needing treatment Y N

Enlarged lymph nodes Y N

Skin - infectious lesions Y N

Peripheral pulses equal Y N

Respiratory:

Symmetrical breath sounds Y N

Wheezes Y N

Cardiovascular:

Murmur Y N

Irregularities Y N

Murmur with Valsalva Y N

Abdomen:

Masses Y N

Organomegaly Y N

Genitourinary (males only);

Inguinal hernia Y N

Bilaterally descended testicles Y N

Any “YES” under Cardiovascular requires a referral to family doctor or other appropriate healthcare provider.

Musculoskeletal: (note any abnormalities)

Neck: Y N

Elbow: Y N

Knee/Hip: Y N

Hamstrings: Y N

Shoulder: Y N

Wrist: Y N

Ankle: Y N

Scoliosis: Y N

RECOMMENDATIONS BASED ON ABOVE EVALUATION:

After my evaluation, I give my:

_____ Full Approval;

_____ Full approval; but needs further evaluation by Family Dentist ____; Eye Doctor ____; Family Physician ____; Other ____;

_____ Limited approval with the following restrictions: _____;

_____ Denial of approval for the following reasons: _____.

MD/DO/DC/Advanced Registered Nurse Practitioner/Physician's Assistant

Date

DON'T LET AN **INJURY** LEAD TO AN OPIOID **ADDICTION**

2 MILLION ATHLETES ARE EXPECTED TO SUFFER A **SPORTS INJURY** THIS YEAR

MANY OF THESE ATHLETES WILL BE PRESCRIBED **OPIOID PAINKILLERS**

75% OF HIGH SCHOOL HEROIN USERS STARTED WITH PRESCRIPTION OPIOIDS

HIGH SCHOOL ATHLETES ARE AT RISK OF BECOMING ADDICTED TO PRESCRIPTION DRUGS

- 28.4% used medical opioids at least once over a three year period.
- 11% of high school athletes have used an opioid medication for nonmedical reasons.
- Nearly 25% of students who chronically use prescription opioids also use heroin.

WHAT ARE OPIOIDS?

Opioids are a powerful and addictive type of prescription painkiller that have similar chemical properties and addiction risks as heroin. While opioids may provide temporary relief, they do nothing to address the underlying injury and can have serious side effects.

These drugs may lead to: dependence, tolerance, accidental overdose, coma and death.

The most common prescribed opioid painkillers in West Virginia are:

- Oxycodone (OxyContin)
- Hydrocodone (Lortab and Vicodin)

HOW TO PROTECT YOUR CHILD

- Talk to your healthcare provider about alternative pain management treatment options (see below).

First-time prescription opioid users have a 64% higher risk of early death than patients who use alternative pain medication.
- If your child is prescribed an opioid painkiller, talk about the dangers of misusing medication, including overuse and medication sharing.
- Monitor your child's intake of prescription medication to ensure he/she is following dosage instructions.
- Safely dispose of any unused medication through a prescription drug drop box or a DEA Take-Back program.

NON-NARCOTIC PAIN MANAGEMENT **ALTERNATIVES**

Physical Therapy
Chiropractic
Massage Therapy
Acupuncture
Over-the-Counter Medication



WEST VIRGINIA
ATTORNEY GENERAL'S OFFICE



West Virginia
Board of
Medicine

HEADS*UP

CONCUSSION IN HIGH SCHOOL SPORTS

A FACT SHEET FOR PARENTS

What is a concussion?

A concussion is a type of traumatic brain injury. Concussions are caused by a bump or blow to the head. Even a "ding," "getting your bell rung," or what seems to be a mild bump or blow to the head can be serious.

You can't see a concussion. Signs and symptoms of concussion can show up right after the injury or may not appear or be noticed until days or weeks after the injury. If your child reports any symptoms of concussion, or if you notice the symptoms yourself, seek medical attention right away.

What are the signs and symptoms of a concussion?

If your child has experienced a bump or blow to the head during a game or practice, look for any of the following signs of a concussion:

| SYMPTOMS REPORTED BY ATHLETE | SIGNS OBSERVED BY PARENTS/GUARDIANS |
|---|---|
| <ul style="list-style-type: none"> • Headache or "pressure" in head • Nausea or vomiting • Balance problems or dizziness • Double or blurry vision • Sensitivity to light • Sensitivity to noise • Feeling sluggish, hazy, foggy, or groggy • Concentration or memory problems • Confusion • Just "not feeling right" or "feeling down" | <ul style="list-style-type: none"> • Appears dazed or stunned • Is confused about assignment or position • Forgets an instruction • Is unsure of game, score, or opponent • Moves clumsily • Answers questions slowly • Loses consciousness (even briefly) • Shows mood, behavior, or personality changes |

How can you help your child prevent a concussion or other serious brain injury?

- Ensure that they follow their coach's rules for safety and the rules of the sport.
- Encourage them to practice good sportsmanship at all times.
- Make sure they wear the right protective equipment for their activity. Protective equipment should fit properly and be well maintained.
- Wearing a helmet is a must to reduce the risk of a serious brain injury or skull fracture.
 - However, helmets are not designed to prevent concussions. There is no "concussion-proof" helmet. So, even with a helmet, it is important for kids and teens to avoid hits to the head.

What should you do if you think your child has a concussion?

SEEK MEDICAL ATTENTION RIGHT AWAY. A health care professional will be able to decide how serious the concussion is and when it is safe for your child to return to regular activities, including sports.

KEEP YOUR CHILD OUT OF PLAY. Concussions take time to heal. Don't let your child return to play the day of the injury and until a health care professional says it's OK. Children who return to play too soon—while the brain is still healing—risk a greater chance of having a repeat concussion. Repeat or later concussions can be very serious. They can cause permanent brain damage, affecting your child for a lifetime.

TELL YOUR CHILD'S COACH ABOUT ANY PREVIOUS CONCUSSION. Coaches should know if your child had a previous concussion. Your child's coach may not know about a concussion your child received in another sport or activity unless you tell the coach.

If you think your teen has a concussion:

Don't assess it yourself. Take him/her out of play. Seek the advice of a health care professional.

It's better to miss one game than the whole season.

For more information, visit www.cdc.gov/Concussion.





WVSSAC

SUDDEN CARDIAC ARREST AWARENESS



What is Sudden Cardiac Arrest?

- Occurs suddenly and often without warning.
- An electrical malfunction (short-circuit) causes the bottom chambers of the heart (ventricles) to beat dangerously fast (ventricular tachycardia or fibrillation) and disrupts the pumping ability of the heart.
- The heart cannot pump blood to the brain, lungs and other organs of the body.
- The person loses consciousness (passes out) and has no pulse.
- Death occurs within minutes if not treated immediately.

What are the symptoms/warning signs of Sudden Cardiac Arrest?

- SCA should be suspected in any athlete who has collapsed and is unresponsive
- Fainting, a seizure, or convulsions during physical activity
- Dizziness or lightheadedness during physical activity
- Unusual fatigue/weakness
- Chest pain
- Shortness of breath
- Nausea/vomiting
- Palpitations (heart is beating unusually fast or skipping beats)
- Family history of sudden cardiac arrest at age <50

ANY of these symptoms/warning signs may necessitate further evaluation from your physician before returning to practice or a game.

What causes Sudden Cardiac Arrest?

- Conditions present at birth (inherited and non-inherited heart abnormalities)
- A blow to the chest (Commotio Cordis)
- An infection/inflammation of the heart, usually caused by a virus. (Myocarditis)
- Recreational/Performance-Enhancing drug use.
- Other cardiac & medical conditions / Unknown causes. (Obesity/Idiopathic)

What are ways to screen for Sudden Cardiac Arrest?

- The American Heart Association recommends a pre-participation history and physical which is mandatory annually in West Virginia.
- Always answer the heart history questions on the student Health History section of the WVSSAC Physical Form completely and honestly.
- Additional screening may be necessary at the recommendation of a physician.

What is the treatment for Sudden Cardiac Arrest?

- Act immediately; time is critical to increase survival rate
- Activate emergency action plan
- Call 911
- Begin CPR
- Use Automated External Defibrillator (AED)

Where can one find additional information?

- Contact your primary health care provider
- American Heart Association (www.heart.org)

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
CHARLESTON DIVISION

B.P.J., by her next friend and mother, HEATHER JACKSON,

Plaintiff,

v.

WEST VIRGINIA STATE BOARD OF EDUCATION, HARRISON COUNTY BOARD OF EDUCATION, WEST VIRGINIA SECONDARY SCHOOL ACTIVITIES COMMISSION, W. CLAYTON BURCH in his official capacity as State Superintendent, and DORA STUTLER in her official capacity as Harrison County Superintendent,

Defendants.

Civil Action No.

Hon.

DECLARATION OF J

I, B.P.J., pursuant to 28 U.S.C. § 1746, declare as follows:

1. I make this declaration of my own personal knowledge, and, if called as a witness, I could and would testify competently to the matters stated herein.

2. I am a girl who is also transgender. I am 11 years old and will be entering the sixth grade this fall at Bridgeport Middle School. I have two older brothers, ages 13 and 20 years old. I live with my brothers; my Mom, Heather; and my Dad, Wesley in Lost Creek, West Virginia.

3. Some of my favorite things to do include playing outside with our family's dogs, riding my bike, and jumping on the trampoline. I am very passionate about math and science and make straight As in school. Also, I like to play videogames like Apex Legends and Minecraft.

4. I am a girl. When I was younger, I remember wanting to play in my mom's clothing and always liking pink and "girly" items.

5. My mom has always been supportive of me, so talking to her about how I was feeling about being a girl and that I wanted to go by the name B.P.J. felt normal to me.

6. After I talked with my parents about being a girl and wanting to go by the name B.P.J., my mother and father were supportive and began taking me to a therapist who works with transgender people. I was diagnosed with gender dysphoria.

7. I am currently on puberty-delaying medication and have been for almost a year.

8. I first got into cheering because my mom encouraged me to try a sport. Since I had spent time learning cheer routines while in the stands and my friends were also on the cheer team, I decided to pursue cheer.

9. I really liked being a cheerleader. It was fun. I liked having the chance to be on a team with my friends and learning how to do all the cheers. I never had any problems with the other girls on the team.

10. During my first year on the cheer team, our team placed at a cheer competition for the first time ever. We got third place in competition. It made me feel proud and good about myself to work hard and succeed as a team.

11. Heading into junior high school, I am excited to try out for the girls' cross-country and track teams. Although I really enjoyed my time on the cheer team, I sometimes got "stage fright" and would prefer to take up a new sport. Since I was young, I have always enjoyed running and everyone in my family runs. My older brothers run cross-country, and my mom runs too. Seeing my family run has motivated me to want to try out and participate.

12. Knowing I cannot try out for the girls' cross-country and track teams just because I am a transgender girl is horrible and makes me feel angry and sad. It hurts to know that I will

not be able to have the chance to run on the girls' team like my friends can because I am a transgender girl.

13. I do not want to run with the boys and I should not have to run with the boys.

14. Running with the girls means a lot to me because I am a girl, and I should be treated like a girl. If I do not get to participate in cross-country or track, I will miss out on the opportunity to spend time with my friends and grow with a new team.

15. I just want to have a chance to participate in school sports like any other girl. It is frustrating and hurtful that some people want to take that chance away from me and treat me differently from everyone else just because I am transgender.

* * *

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on 5-24-2021

B. P. Jr.
B.P.J.

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
CHARLESTON DIVISION

B.P.J., by her next friend and mother, HEATHER JACKSON,

Plaintiff,

v.

WEST VIRGINIA STATE BOARD OF EDUCATION, HARRISON COUNTY BOARD OF EDUCATION, WEST VIRGINIA SECONDARY SCHOOL ACTIVITIES COMMISSION, W. CLAYTON BURCH in his official capacity as State Superintendent, and DORA STUTLER in her official capacity as Harrison County Superintendent,

Defendants.

Civil Action No.

Hon.

DECLARATION OF PROFESSOR MARY D. FRY, PHD

1. I have been retained by counsel for Plaintiff as an expert in connection with the above-captioned litigation.

2. The purpose of this declaration is to offer my expert opinion on: (1) the psychological and behavioral benefits of youth sports; and (2) the conditions that lend themselves to youth participating in athletics and accessing those benefits when they do participate.

3. I have knowledge of the matters stated in this declaration. I have collected and cite to relevant literature concerning the issues that arise in this litigation in the body of this declaration and in the attached bibliography.

4. In preparing this declaration, I reviewed West Virginia HB 3293, the bill at issue in this litigation.

5. In preparing this declaration, I relied on my education and training, my professional and research experience, and my knowledge of the literature in the pertinent fields. The materials I have relied upon in preparing this declaration are the same types of materials that experts in my field of study regularly rely upon when forming opinions on the subject. I may wish to supplement these opinions or the bases for them as a result of new research or publications or in response to statements and issues that may arise in my area of expertise.

PROFESSIONAL BACKGROUND

6. I am a Professor in the Department of Health, Sport & Exercise Sciences at the University of Kansas in Lawrence, Kansas. A true and correct copy of my CV is attached hereto as Exhibit A.

7. In 1984, I graduated from Texas Wesleyan University in Fort Worth, Texas with a Bachelor of Science in Physical Education. After graduating, I spent about five years teaching physical education and coaching tennis at schools and summer camps in Texas and North Carolina.

8. I graduated with a Master of Science in Sport Psychology/Pedagogy from the University of North Carolina in Greensboro in 1990. Then, in 1994, I graduated with a doctorate in Sport & Exercise Psychology from Purdue University. From 1994 to 1999, I served as an Assistant Professor in the University of Memphis's Department of Human Movement Sciences and Education. I continued at the same institution from 1999 to 2007 as an Associate Professor in the Department of Human & Sport Sciences. I joined the faculty of the University of Kansas in 2007, where I continue to teach and research as a Professor today.

9. I have authored or coauthored 63 papers in peer-reviewed journals, including many studies in sport psychology and youth athlete motivation. I have coauthored five book chapters and one book, titled *A Coach's Guide to Maximizing the Youth Sport Experience: Work Hard and Be Kind*. I have also given 116 presentations on my research at both international and national conferences, as well as dozens of local and regional presentations.

10. I have taught and/or developed six undergraduate level courses and 12 graduate level courses in sport and exercise psychology. The courses I developed include Psychosocial Aspects of Sport, Applied Sport Psychology, Developmental Perspectives in Youth Sport, and Special Course: Sport Psychology Within Youth Sport.

11. On a national level, I have served with the Association of Applied Sport Psychology ("AASP") as a member of the Program Review Committee (2008-present), a Subject Matter Expert for the Certification Exam Committee (2018), and a member of the Ad-Hoc Future of AASP Committee (2012-2015). For the AASP, I have served as an Executive Board Member (2004-2006), two three-year terms as a member of the Social Psychology Section Committee (1996-99; 2001-2003), and as a member of the Dissertation Award Committee (1998 & 2002). I have also served on the Editorial Board for *Physical Activity Today* (1997-2001) and on the Program Review Committee for the American Alliance of Health, Physical Education, Recreation & Dance (2009-2017), in addition to chairing the Committee in 2010. I also serve on the National Advisory Board for the Positive Coaching Alliance.

12. I have undertaken editorial roles on professional journals within my field, including as Associate Editor (2009-2012) and Editorial Board Member (2000-2009; 2013-present) for the *Journal of Applied Sport Psychology*; Associate Editor (2008-present) for the *Journal of Sport Psychology in Action*; Section Editor (2003-2006) and Reviewer (1994-present)

for the *Research Quarterly for Exercise and Sport*; and Editorial Board Member (2011-present) for *Sport, Exercise, and Performance Psychology*.

13. I have served on the Kansas University Certificate in Sport Committee (2017-2018), and the Kansas University Center for Undergraduate Research, Advisory Board (2016-2018), among other roles at the University.

14. I am, or have been, a member of several professional organizations, including the American Psychological Association (2017-present), the Kansas Alliance for Health, Physical Education, Recreation, & Dance (2008-present), the American Alliance for Health, Physical Education, Recreation, and Dance (1988-2017), and the North American Society for the Psychology of Sport and Physical Activity (1988-2000).

15. I also have experience applying sport psychology in the field, which include mental skills interventions for various athletes and teams, including with high school and university athletes (2018-present), a high school baseball team (2013-2018), a youth baseball team (2009-2011), a Division I collegiate volleyball team (2008-2010), a high school basketball team (2006-2007), and a Division I cross country team (2006).

16. I have not previously testified as an expert witness in either deposition or at trial.

17. I am being compensated at an hourly rate of \$250 per hour. My compensation does not depend on the outcome of this litigation, the opinions I express, or the testimony I provide.

MOTIVATION AND ATHLETICS

18. There are many benefits to young people from participating in athletic activities, discussed further below. But understanding what motivates youth to participate in athletics in the first place is essential for understanding how they can access these benefits. One critical way to

increase participation in athletics is to understand the factors that motivate individuals to stay engaged at different ages and in different contexts. Understanding motivation also helps to explain how the benefits youth derive from participating in sport translate to other aspects of their lives.

19. In simple terms, motivation is the desire to do activities. More formally, it is defined as “the process that influences initiation, direction, magnitude, perseverance, continuation, and quality of goal-directed behavior” (Maehr & Zusho, 2009). Motivation is about why, how, when, and in what circumstances people employ their resources.

20. One of the most-researched motivational theories in the field of sport psychology is achievement goal perspective theory (“AGPT”), which was developed to address how motivation could be heightened and sustained over time (Nicholls 1984, 1989). AGPT includes three components that together can work to optimize motivation among all individuals, including youth participating in sports.

21. First is the developmental component of AGPT. Young children are incapable of accurately comparing their ability to others, overestimate their ability, and are naturally focused on their effort as a marker of success. By the time they enter adolescence, however, they are able to distinguish the concepts of effort, luck, and ability.

22. Second, around 12 years of age, children achieve a mature understanding of the concept of ability and at that time adopt their own personal definitions of success, or “goal orientations.” The primary goal orientations are task and ego. Individuals with a “high task orientation” define success based on their effort, improvement, and mastery of tasks over time. In contrast, a high ego orientation occurs when individuals define success in normative terms,

only feeling successful when they outperform others. Individuals are to some degree both task- and ego-oriented; in fact, they can be high and/or low in both orientations.

23. Third, motivations are shaped by outside factors, which can reinforce a task orientation as opposed to an ego orientation. Specifically, athletes' perceptions of the environment that is created by coaches (but can also be influenced by parents and teammates) (Ames, 1992a, 1992b; Nicholls, 1984, 1989) can be a caring and task-involving or ego-involving climate. A caring climate is one where athletes feel safe and welcome, comfortable, valued, and are treated with kindness and respect by all in the sport setting (Newton et al. 2007).

24. With the goal of increasing opportunities for participation in mind, AGPT provides important guidance about how to help each athlete maximize their sport experience and to increase opportunities within athletics for youth.

BENEFITS OF SPORT FOR YOUTH ATHLETES

25. For youth student-athletes, athletics serve a different purpose than for athletes who participate in professional athletics or world elite competition. The National Collegiate Athletic Association (NCAA) estimates that there are 7.3 million high school student-athletes in the United States. Of those millions of athletes, only about 6% go on to compete at the college level in any division (with only about 2% earning an athletic scholarship).¹ By the numbers alone, the primary purpose of high school sports is not about preparing youth for college sports. For the 94% of high school athletes who do not compete in college as well as for those who do, youth sport creates a myriad of benefits (unrelated to preparing athletes to compete in college).

¹ NCAA Recruiting Facts (March 2018), <https://www.ncaa.org/sites/default/files/Recruiting%20Fact%20Sheet%20WEB.pdf>.

A. Athletes' Type of Goal Orientation Determines What Benefits They Derive from Youth Athletics.

26. A high task orientation, described above in Paragraph 21, is the key to optimizing motivation over time because effort and improvement – the keys to task orientation – are variables that individuals can more easily control. In contrast, individuals high in ego orientation define success based on performance relative to others. High task orientation results in athletes' being more likely to seek challenge, exert high effort, and persist over time (Maehr & Zusho, 2009).

27. It should be noted that the research findings described below, which highlight the relationships between goal orientations and numerous outcome variables, have been consistent for both boys and girls. In other words, within the body of research on athletes' goal orientations, results across studies reveal that task orientation is more often positively correlated with adaptive outcomes (e.g., intrinsic motivation), and ego orientation is more often negatively associated with maladaptive outcomes (e.g., worry) for both boys and girls (Fry & Moore, 2019; Roberts, 2012; Roberts, Nerstad, & Lemyre, 2018).

28. Perhaps the strongest finding within the goal orientation research links a task orientation with high enjoyment. Throughout childhood and adolescence, and across a range of sports, athletes who define success based on their personal effort and improvement have more fun playing their sport than those high in ego orientation (Schneider, Harrington, & Tobar, 2017; Seifriz, Duda, & Chi, 1992; Stephens, 1998; Stuntz & Weiss, 2009; van de Pol & Kavussanu, 2011). Importantly, goal orientations are also associated with the sources of enjoyment athletes identify. For example, youth athletes with a high task orientation more often report experiencing enjoyment from learning and having positive team interactions. In contrast, athletes high in ego

orientation more often report experiencing enjoyment as a result of winning and having high perceived competence (Lochbaum & Roberts, 1993).

29. Another benefit of high task orientation in youth athletes is the strong and positive association with interpersonal and team dynamics (Balaguer, Duda, & Crespo, 1999; Ommundsen, Roberts, Lemyre, & Miller, 2005). Task orientation is positively correlated with peer acceptance, less conflict with peers, and greater satisfaction with the coach.

30. Athletes high in ego orientation report lower companionship and greater conflict with teammates (Balaguer et al., 1999), and there is no evidence to suggest they reap the benefits of enhanced social relationships that athletes with high task orientation do (Ommundsen et al., 2005).

31. Athletes high in task orientation also report greater confidence and perceived ability, and task orientation has been correlated with both self and team efficacy and greater perceived competence (Magyar & Feltz, 2003; Seifriz et al., 1992; Stuntz & Weiss, 2009). Further, athletes high in task orientation report utilizing more adaptive coping strategies (Kim, Duda, & Gano-Overway, 2011; McCarthy 2011). These adaptive outcomes have been found for middle school, high school, and collegiate athletes.

32. Ego orientation (i.e. the non-pejorative, descriptive term for defining success based on ability and performance outcomes), in contrast, is not correlated with perceived ability in general. Confidence of athletes high in ego orientation was more often based on their perceptions of ability and having a strong physical presence, whereas athletes high in task orientation based their perceptions of confidence on their sense of feeling well prepared and mentally strong (Magyar and Feltz, 2003). There is also a consistently significant relationship between ego orientation and anxiety (Lochbaum et al., 2016). Young athletes with high ego

orientation participating in a variety of sports have reported higher trait and state cognitive and somatic anxiety, as well as greater concentration disruption, maladaptive perfectionism, and concern over making mistakes (Grossbard, Cumming, Standage, Smith, & Smoll, 2007; Hall, Kerr, & Matthews, 1998; Ommundsen & Pedersen, 1999; Ommundsen et al., 2005; White & Zellner, 1996).

B. Structuring Sport with a Caring and Task-Involving Climate Fosters High Task Orientation, Which Optimizes Benefits for Youth Athletes.

33. A large body of research in sport psychology, and specifically youth sport, identifies how sport can be structured to help young athletes reap many physical, psychological, and social benefits from their participation in sport and physical activities (Duda, 2013; Fry & Hogue, 2018; Fry & Moore, 2019; Harwood, Keegan, Smith, & Raine, 2015; Roberts, 2013).

34. In youth sports, the climate created on individual athletes' teams, more than the identity of their opponents, determines whether and to what extent young athletes are deriving optimal benefits from sport and maintaining motivation to participate in sport. Overall, the best way to get youth athletes to participate in sports is to create a caring and task-motivated climate, which reinforces high task orientation and leads to the benefits described above. These outcomes help athletes have a sport experience that makes them want to keep playing sport, thereby deriving the benefit of sport more consistently and for longer periods of time. Again, within the motivational climate literature, the findings are consistent for both boys and girls, in that they both have more adaptive responses in a caring and task-involving climate and more problematic, maladaptive responses in ego-involving climates. (Fry & Hogue, 2018; Fry & Moore, 2019; Harwood et al., 2015; Roberts, 2012; Roberts, Nerstad, & Lemyre, 2018).

35. A caring and task-involving climate is one in which coaches do the following: recognize and reward effort and improvement; foster cooperation among teammates; make

everyone feel they play an important role on the team; treat mistakes as part of the learning process; and encourage an approach where everyone is treated with mutual kindness and respect.

36. When athletes perceive a caring and task-involving climate on their teams, they are more likely to have fun, exert high effort, experience intrinsic motivation, have better interpersonal relationships with coaches and athletes, display better sportsperson-like values and behaviors, have better psychological well-being, and perform better (Duda & Nicholls, 1992; Fry & Hogue, 2018; Iwasaki & Fry, 2013; Newton, Duda, & Yin, 2000; McDonald, Cote, Eys, & Deakin, 2011). In addition, there are positive and significant associations between perceptions of a caring climate in sport settings and the hope and happiness of youth, and negative relationships with depression and sadness (Fry et al., 2012), as well as the ability of youth athletes to monitor and control their affective responses. This self-regulation was found to contribute to athlete empathy, indicating that fostering more caring climates in sport settings may facilitate positive social interactions and character development (Gano-Overway et al., 2009). Elite adult athletes who are task-oriented and/or who perceive a task-involving climate are also significantly more likely to report not using performance-enhancing drugs (Allen, et al., 2015).

37. Youth involved in positive and supportive sport environments experience greater self-esteem, psychological well-being, and hope, with less depression, sadness, and burnout than those in less supportive environments. They have better emotional self-regulation, meaning they are more able to manage negative emotions, to keep things in perspective, and to feel and express joy when good things happen (Fry et al, 2012; Gano-Overway et al, 2009).

38. In contrast, where coaches reward only ability and performance outcome, foster rivalry among teammates, punish mistakes, and give most of the recognition to a few “stars,” they contribute to an ego-focused climate that can lead to athletes’ experiencing fewer adaptive

and positive motivational outcomes and greater negative outcomes. Ego-focused environments create greater acceptance of rough play, cheating, and aggressive behaviors in their sport (Boixados, Cruz, Torregrosa, & Valiente, 2004), and are less likely to lead to appropriate, desirable, and respectful behaviors within sport (Fry & Newton, 2003).

39. Athletes' perceptions of a caring and task-involving climate may also be linked to higher quality training and better performance outcomes, as researchers report more effective practice strategies in sport and physical education settings (Boyce, Gano-Overway, & Campbell, 2009; Iwasaki & Fry, 2016; Lochbaum et al., 2016). Some studies have revealed a direct association between perceptions of a task-involving climate to objective performance (Hogue, Fry, & Fry, 2017; Theeboom, De Knop, & Weiss, 1995; Xiang, Bruene, & McBride, 2004).

40. Young athletes have also had higher winning percentages on their teams and performed better on tasks when they perceived a task-involving (rather than ego-involving) climate (Cumming et al., 2007; Sarrazin, Roberts, Cury, Biddle, & Famose, 2002).

41. Athletes' perceptions of a task-involving climate were associated with less performance worry and escapism thoughts (Hatzigeorgiadis & Biddle, 2002). Often, mistakes and facing challenges present opportunities to learn and succeed in different ways (by improving oneself, for example). And in sport, much is unpredictable: An opponent's unexpected performance, the weather, and an illness, can drastically change a competition day. Being adaptive and focused on giving one's best effort can help athletes' overcome disappointment (Fry, et al., 2020; Fry & Moore, 2019).

42. Despite the ego-involving climate's emphasis on performance outcomes, results across studies suggest that the benefits of a task-involving climate may have a direct impact on athletic performance and ultimately improve performance outcomes (Jackson & Roberts, 1992;

McDonald, Cote, & Deakin, 2011). By contrast, no evidence currently points to an ego-involving climate leading to greater performance outcomes with young athletes.

43. Even for athletes who are themselves highly ego-oriented, and who prioritize winning and external rewards, a task-involving and caring climate is preferable. Such a climate encourages young athletes to orient themselves toward a task-involved model for motivation and away from the stress-inducing ego-orientation, which will in turn garner the young person the benefits associated with a task-orientation. For example, Division I college athletes who perceived a caring and task-involving climate on their teams reported having stronger mental skills including their use of goal setting; ability to concentrate, remain worry free, cope with adversity and peak under pressure; act with confidence; and be open to receiving feedback from coaches (Fry, Iwasaki, & Hogue, in press). These findings would suggest that athletes with strong mental skills might also perform better. Further, perceptions of an ego-involving climate have been linked to higher salivary cortisol responses (Hogue, Fry & Fry, 2017). Cortisol is an important and necessary hormone, but in excess it can break down muscle tissue and interfere with the immune system.

**EXCLUDING GROUPS FROM PARTICIPATING IN
HIGH SCHOOL ATHLETICS WOULD DEPRIVE THEM AND THEIR TEAMMATES
OF A WIDE RANGE OF EDUCATIONAL BENEFITS**

44. A goal of youth sport is to help young athletes have positive experiences across sport. This includes creating space for athletes to have fun, develop skills, make friends, increase their levels of physical activity, continue their participation over time, and learn valuable life lessons (Thompson, 2010). If athletes are arbitrarily excluded from youth sports, they are, in turn, deprived of those positive experiences and outcomes and their teammates are deprived of a genuinely task-involving and caring sports climate.

45. Athletes who participate in high school sport are more likely to finish college, and more likely to be actively engaged in planning for their future after their sport career ends (Chamberlin & Fry, 2020; Troutman & Defur, 2007). Many of the benefits to youth who participate in athletics are documented throughout life. For example, women who participated in high school sport see greater success in the business world (ESPNW & EY, 2017; Sasaki, 2020).

46. All youth benefit from a sport environment that is task-involving, which results in athletes taking on more challenging tasks (Stuntz & Weiss, 2009; van de Pol & Kavussanu, 2011), building stronger interpersonal dynamics (Balaguer, Duda, & Crespo, 1999; Ommundsen, Roberts, Lemyre, & Miller, 2005), reducing antisocial behavior (Kavussanu & Roberts, 2001; Stephens & Kavanagh, 2003), and acquiring greater confidence (Magyar & Feltz, 2003; Seifriz et al., 1992; Stuntz & Weiss, 2009).

47. Coaches and others involved in youth sport have a responsibility for creating the climate that is most conducive to encouraging young athletes to adopt a high task-orientation. Arbitrarily excluding athletes from their teams undermines a caring climate, which, in turn, diminishes the positive outcomes for all youth athletes. The negative outcomes apply not only to the athletes who are excluded, but to the other athletes on the team.

48. Excluding groups of athletes can also undermine the benefits of a high task-involving climate, as such a climate should help athletes develop strong interpersonal and team dynamics (Balaguer, Duda, & Crespo, 1999; Ommundsen, Roberts, Lemyre, & Miller, 2005). Fostering task orientation positively correlates with peer acceptance, less conflict with peers, and greater satisfaction with the coach. These outcomes help athletes have a sport experience that make them want to keep playing sport.

49. When young athletes are excluded from participating in youth sport, or are in a climate where they do not feel accepted or respected, they do not have the opportunity to reap these benefits.

**FOCUSING SOLELY ON PERFORMANCE OUTCOMES
UNDERMINES THE BENEFITS OF YOUTH ATHLETICS**

50. When a team, league, or organization adopts an ego-promoting philosophy, and cares only about performance outcomes, the broader benefits of sport are diminished for all involved (both with regard to their future athletic careers and lives outside of sport). The overwhelming majority of high school athletes will never go on to compete in college, so focusing only on the highest-performing athletes compromises the other critical benefits of sports for youth.

51. Such a focus is stress-inducing and undermines the experience of the rest of the athletes who may train hard, improve, but may not be on the podium to receive a medal. The climate of youth sport must be geared to include everyone, including those who are not as skilled, so that teams are more likely to help every athlete maximize their potential. From an educational perspective, it is optimal to encourage all athletes to do the best that they can, and to help all athletes enjoy the sport that they love. Even among Division I collegiate athletes, athletes who perceived a task-involving climate on their teams reported higher academic and athletic satisfaction (Tudor & Ridpath, 2018).

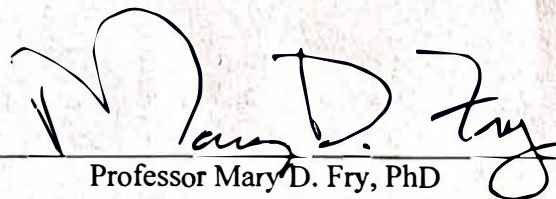
52. Thus, the benefits associated with youth sport are not limited to whether athletes are winning competitions, where they are ranked in their sport, or what level of publicity they are getting. In fact, a focus exclusively on those things not only undermines an athlete's success in those areas but can compromise the holistic range of benefits derived from youth sport. Ultimately, athletes are more likely to reap the positive benefits associated with youth sports if

they are task-involved, which places greater emphasis on effort, than if they are ego-involved, which would put greater emphasis on trappings of individual success.

53. For coaches of youth athletes, one important message is that, for the overwhelming majority of people, the period of time that a person participates in organized athletics is short and maximizing the benefits of that participation is essential. As Jim Thompson, Founder and former-CEO of the Positive Coaching Alliance notes: "Here's the bottom line for parents. Your child's experience with youth sports will come to an end, and it may happen suddenly. If you are like me, you will look back and think, 'I wish I had enjoyed it more. I wish I hadn't obsessed so much about how well my child was performing, or the team's record, or whether he or she was playing as much as I wanted, or why the coach didn't play him or her in the right position. I wish I had just enjoyed the experience more.' Because the youth sports experience is so intense, we tend to forget how short it is and what a small amount of time parents and children get to spend together over the course of life."

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Dated: May 7, 2021



Professor Mary D. Fry, PhD

BIBLIOGRAPHY

- Allen, J., Taylor, J., Dimeo, P, Dixon, S., & Robinson, L. (2015). Predicting elite Scottish athletes' attitudes towards doping: Examining the contribution of achievement goals and motivational climate. *Journal of Sports Sciences*, 33, 899-906.
- Ames, C. (1992a). Achievement goals, motivational climate, and motivational processes. In *Motivation in sport and exercise* (pp. 161–176). Champaign, IL: Human Kinetics.
- Ames, C. (1992b). Classrooms: Goals, Structures, and Student Motivation. *Journal of Educational Psychology*, 84(3), 261–271. <https://doi.org/10.1037/0022-0663.84.3.261>
- Balaguer, I., Duda, J. L., & Crespe, M. (1999). Motivational climate and goal orientations as predictors of perceptions of improvement, satisfaction, and coach ratings among tennis players. *Scandinavian Journal of Medicine and Science in Sports*, 9, 381-388.
- Boixadós, M., Cruz, J., Torregrosa, M., & Valiente, L. (2004). Relationships among motivational climate, satisfaction, perceived ability, and fair play attitudes in young soccer players. *Journal of Applied Sport Psychology*, 16(4), 301–317. <https://doi.org/10.1080/10413200490517977>
- Boyce, B. A., Gano-Overway, L. a., & Campbell, A. L. (2009). Perceived motivational climate's influence on goal orientations, perceived competence, and practice strategies across the athletic season. *Journal of Applied Sport Psychology*, 21(January), 381–394. <https://doi.org/10.1080/10413200903204887>
- Boyd, M., Kim, M., Ensari, N. & Yin, Z. (2014). Perceived motivational team climate in relation to task and social cohesion among male college athletes. *Journal of Applied Social Psychology*, 44, 115-123.
- Cumming, S. P., Smoll, F. L., Smith, R. E., & Grossbard, J. R. (2007). Is winning everything? The relative contributions of motivational climate and won-lost percentage in youth sports. *Journal of Applied Sport Psychology*, 19(3), 322–336. <https://doi.org/10.1080/10413200701342640>
- Duda, J. L. (2013). The conceptual and empirical foundations of Empowering Coaching TM: Setting the stage for the PAPA project. *International Journal of Sport and Exercise Psychology*, 11(4), 311–318. <https://doi.org/10.1080/1612197X.2013.839414>
- Duda, J. L., & Nicholls, J. G. (1992). Dimensions of achievement motivation in schoolwork and sport. *Journal of Educational Psychology*, 84(3), 290–299. <https://doi.org/10.1037/0022-0663.84.3.290>
- Fry, M. D., & Hogue, C. M. (2018). Psychological considerations for children and adolescents in sport and performance. Oxford Research Encyclopedia of Psychology.

- Fry, M., & Moore, E. (2018). Motivation in sport: Theory and application. In M. H. Anshel (Ed.), T. Petrie, E. Labbe, S. Petruzello, & J. Steinfeldt (Assoc. Eds.), *APA Handbook of Sport and Exercise Psychology*. Vol 1. Sport Psychology (pp. 273-299). Sport psychology. Washington DC: American Psychological Association.
- Fry, M. D., & Newton, M. (2003). Application of Achievement Goal Theory in an urban youth tennis setting. *Journal of Applied Sport Psychology*, 15(1), 50–66.
<https://doi.org/10.1080/10413200305399>
- Fry, M. D., Gano-Overway, L., Guivernau, M., Kim, M., & Newton, M. (2020). A coach's guide to maximizing the youth sport experience: Work hard, be kind. New York: Routledge.
- Fry, M. D., & Gano-Overway, L. A. (2010). Exploring the contribution of the caring climate to the youth sport experience. *Journal of Applied Sport Psychology*, 22(3), 294–304.
- Fry, M. D., Iwasaki, S., & Hogue, C., in press. The relationship between the perceived motivational climate in elite collegiate sport and athlete psychological coping skills. *Journal of Clinical Sport Psychology*.
- Gano-Overway, L. A., Newton, M., Magyar, T. M., Fry, M. D., Kim, M.-S., & Guivernau, M. R. (2009). Influence of caring youth sport contexts on efficacy-related beliefs and social behaviors. *Developmental Psychology*, 45(2), 329–340. <https://doi.org/10.1037/a0014067>.
- Grossbard, J. R., Cumming, S. P., Standage, M., Smith, R. E., & Smoll, F. L. (2007). Social desirability and relations between goal orientations and competitive trait anxiety in young athletes. *Psychology of Sport and Exercise*, 8(4), 491-505.
<https://doi.org/10.1016/j.psychsport.2006.07.009>
- Hall, H. K., Kerr, A. W., & Matthews, J. (1998). Precompetitive anxiety in sport: The contribution of achievement goals and perfectionism. *Journal of Sport & Exercise Psychology*, 20(2), 194–217.
- Harwood, C. G., Keegan, R. J., Smith, J. M. J., & Raine, A. S. (2015). A systematic review of the intrapersonal correlates of motivational climate perceptions in sport and physical activity. *Psychology of Sport and Exercise*, 18, 9–25.
<https://doi.org/10.1016/j.psychsport.2014.11.005>
- Hogue, C. M., Fry, M. D., & Fry, A. C. (2017). The differential impact of motivational climate on adolescents' psychological and physiological stress responses. *Psychology of Sport and Exercise*, 30, 118–127. <https://doi.org/10.1016/j.psychsport.2017.02.004>
- Iwasaki, S., & Fry, M. D. (2016). Female adolescent soccer players' perceived motivational climate, goal orientations, and mindful engagement. *Psychology of Sport and Exercise*, 27, 222–231. <https://doi.org/10.1016/j.psychsport.2016.09.002>

- Jackson, S. A., & Roberts, G. C. (1992). Positive performance states of athletes: Toward a conceptual understanding of peak performance. *Sport Psychologist*, 6(2), 156-171.
- Kavussanu, M., & Roberts, G. C. (2001). Moral functioning in sport: An achievement goal perspective. *Journal of Sport & Exercise Psychology*, 23(1), 37-54.
- Kim, M., Duda, J. L., & Gano-Overway (2011). Predicting occurrence of and responses to psychological difficulties: The interplay between achievement goals, perceived ability and motivational climates among Korean athletes. *International Journal of Sport and Exercise Psychology*, 9, 31-47.
- Lochbaum, M., Cetinkalp, Z. K., Graham, K., Wright, T., & Zazo, R. (2016). Task and ego goal orientations in competitive sport: A quantitative review of the literature from 1989 to 2016. *Kinesiology*, 48, 3-29.
- Maehr, M. L., & Zusho, A. (2009). Achievement goal theory: The past, present, and future. In K.R. Wentzel & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 77-104). New York, NY: Routledge.
- Magyar & Feltz (2003). The influence of dispositional and situational tendencies on adolescent girls' sport confidence sources. *Psychology of Sport and Exercise*, 4, 175-190.
- McCarthy, J. J. (2011). Exploring the Relationship Between Goal Achievement Orientation and Mindfulness in Collegiate Athletics. *Journal of Clinical Sport Psychology*, 5(1), 44-57.
- MacDonald, D. J., Cote, J., Eys, M., Deakin, J. (2011). The role of enjoyment and motivational climate in relation to the personal development of team sport athletes. *Sport Psychologist*, 25, 32-46.
- Newton, M., Duda, J. L., & Yin, Z. (2000). Examination of the psychometric properties of the perceived motivational climate in sport questionnaire-2 in a sample of female athletes. *Journal of Sports Sciences*, 18(4), 275-290. <https://doi.org/10.1080/026404100365018>
- Newton, M., Fry, M. D., Watson, D. L., Gano-Overway, L. A., Kim, M., Magyar, T. M., & Guivernau, M. R. (2007). Psychometric properties of the Caring Climate Scale in a physical activity setting. *Revista de Psicología Del Deporte*, 16, 67-84. Retrieved from <file:///C:/Users/zar4559/Downloads/22-22-1-PB.pdf>
- Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review*, 91(3), 328-346. <https://doi.org/10.1037/0033-295X.91.3.328>
- Nicholls, J. G. (1989). *The competitive ethos and democratic education*. Cambridge, MA: Harvard University Press.
- Olympiou, A., Jowett, S., & Duda, J. L. (2008). The psychological interface between the coach-

- created motivational Climate and the coach-athlete relationship in team sports. *Sport Psychologist*, 22(4), 423–438. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=35719365&lang=es&site=ehost-live&scope=site>
- Ommundsen, Y & Petersen, B.H. (1999). The role of achievement goal orientations and perceived ability upon somatic and cognitive indices of sport competition trait and anxiety. *Scandinavian Journal of Medicine and Science in Sports*, 9, 333-343.
- Ommundsen, Y., Roberts, G. C., Lemyre, P.-N., & Miller, B. W. (2006). Parental and coach support or pressure on psychosocial outcomes of pediatric athletes in soccer. *Clinical Journal of Sport Medicine : Official Journal of the Canadian Academy of Sport Medicine*, 16(6), 522–526. <https://doi.org/10.1097/01.jsm.0000248845.39498.56>
- Poux, K. N., & Fry, M. D. (2015). Athletes’ perceptions of their team motivational climate, career exploration and engagement, and athletic identity. *Journal of Clinical Sport Psychology*, 9(4), 360–372. <https://doi.org/10.1123/jcsp.2014-0050>
- Roberts, G. C. (2013). Advances in motivation and sport exercise. In D. C. Roberts, G. C. & Treasure (Ed.), *Advances in motivation in sport and exercise* (3rd Ed), pp. 5–58. Champaign, IL: Human Kinetics.
- Roberts, G. C., Nerstad, G. L., & Lemyre, P. N. (2018). Motivation in sport and performance. In O. Braddick (Ed.), *Oxford Research Encyclopedia of Psychology* (pp. 1-46). Oxford University Press.
- Sarrazin, P., Roberts, G. C., Cury, F., Biddle, S., & Famose, J.-P. (2002). Exerted effort and performance in climbing among boys: The influence. *Research Quarterly for Exercise and Sport*, 73(4).
- Sasaki, J. (2020). How can winning on the playing field prepare you for success in the boardroom? EY: Building a better world. https://www.ey.com/en_gl/women-fast-forward/how-can-winning-on-the-playing-field-prepare-you-for-success-in-the-boardroom
- Schneider, R. A. Y., Harrington, M., & Tobar, D. (2017). Goal orientation and how a task or ego mentality can affect the enjoyment for college hockey players. *College Student Journal*, 51(1), 57-62.
- Seifriz, J. J., Duda, J. L., & Chi, L. (1992). The relationship of perceived motivational climate to intrinsic motivation and beliefs about success in basketball. *Journal of Sport & Exercise Psychology*, 14, 375–391.
- Stephens, D. E., & Kavanagh, B. (2003). Aggression in Canadian youth ice hockey: The role of moral atmosphere. *International Sports Journal*, 7, 109-119.
- Stuntz & Weiss (2009). Achievement goal orientations and motivational outcomes in youth

sport: The role of social orientations. *Psychology of Sport and Exercise*, 10, 255-262.

Theeboom, M., Knop, P. De, & Weiss, M. R. (1995). Motivational climate, psychological responses, and motor skill development in children's sport: A field-based intervention study. *Journal of Sport & Exercise*, 17, 294-311.

Thompson, J. (2010). Positive coaching: Building character and self-esteem through sports. New York: Brown & Benchmark.

Troutman, K., & Dufur, M. (2007). From high school jocks to college grads: Assessing the long-term effects of high school sport participation on females' educational attainment. *Youth & Society*, 38(4), 443-462. doi:10.1177/0044118X06290651

Tudor, M. L., & Ridpath, B. D. (2018). Does the perceived motivational climate significantly predict academic and/or athletic motivation among NCAA Division I college athletes. *Journal of Contemporary Athletics*, 12(4), 291-307.

van De Pol, P. K. C., Kavussanu, M., (2011). Achievement goals and motivational responses in tennis: Does the context matter? *Psychology of Sport & Exercise*, 12, 176-183.

White, S., & Zellner (1996). The relationship between goal orientation, beliefs about the causes of sport success, and trait anxiety among high school, intercollegiate, and recreational sport participants. *Sport Psychologist*, 10, 58-72.

Xiang, P., Bruene, A., & McBride, R. E. (2004). Using achievement goal theory to assess an elementary physical education running program. *Journal of School Health*, 74, 220-225.

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
CHARLESTON DIVISION

B.P.J., by her next friend and mother, HEATHER JACKSON,

Plaintiff,

v.

WEST VIRGINIA STATE BOARD OF
EDUCATION, HARRISON COUNTY
BOARD OF EDUCATION, WEST VIRGINIA
SECONDARY SCHOOL ACTIVITIES
COMMISSION, W. CLAYTON BURCH in his
official capacity as State Superintendent, and
DORA STUTLER in her official capacity as
Harrison County Superintendent,

Defendants.

Civil Action No.

Hon.

DECLARATION OF DEANNA ADKINS, MD

1. I have been retained by counsel for Plaintiffs as an expert in connection with the above-captioned litigation.

2. I intend to provide my expert opinion on: (1) the nature and impact of treatment protocols for transgender youth; and (2) the different biological characteristics of sex and the ways in which they may not align in the same direction within a person.

3. I have knowledge of the matters stated in this declaration and have collected and cite to relevant literature concerning the issues that arise in this litigation in the body of this declaration.

4. In preparing this declaration, I reviewed the text of House Bill 3293 filed in this matter. I also relied on my scientific education and training, my research experience, and my knowledge of the scientific literature in the pertinent fields. The materials I have relied upon in preparing this declaration are the same types of materials that experts in my field of study

regularly rely upon when forming opinions on these subjects. I may wish to supplement these opinions or the bases for them as a result of new scientific research or publications or in response to statements and issues that may arise in my area of expertise.

BACKGROUND AND QUALIFICATIONS

5. I received my medical degree from the Medical College of Georgia in 1997. I served as the Fellowship Program Director of Pediatric Endocrinology at Duke University School of Medicine for fourteen years and am currently the Director of the Duke Center for Child and Adolescent Gender Care.

6. I have been licensed to practice medicine in the state of North Carolina since 2001.

7. I have extensive experience working with children with endocrine disorders and I am an expert in the treatment of children with differences or disorders of sex development and in the treatment of children with gender dysphoria.

8. I am a member of the American Academy of Pediatrics, the North Carolina Pediatric Society, the Pediatric Endocrine Society, and The Endocrine Society. I am also a member of the World Professional Association for Transgender Health (“WPATH”), the leading association of medical and mental health professionals in the treatment of transgender people.

9. I am the founder of the Duke Center for Child and Adolescent Gender Care (“Gender Care Clinic”), which opened in 2015. I currently serve as the director of the clinic. The Gender Care clinic treats children and adolescents age 7 through 22 with gender dysphoria and/or differences or disorders of sex development. I have been caring for these patients in my routine practice for many years prior to opening the clinic.

10. I currently treat approximately 400 transgender and intersex young people from

North Carolina and across the Southeast at the Gender Care clinic. I have treated approximately 500 transgender and intersex young people in my career.

11. As part of my practice, I stay familiar with the latest medical science and treatment protocols related to differences or disorders of sex development and gender dysphoria.

12. I am regularly called upon by colleagues to assist with the sex assignment of infants who cannot be classified as male or female at birth due to a range of variables in which sex-related characteristics are not completely aligned as male or female.

13. I have testified twice as an expert at trial or deposition in the past four years.

TREATMENT PROTOCOLS FOR TRANSGENDER PEOPLE

14. A transgender individual is an individual who has a gender identity that differs from the person's sex designated at birth.

15. A person's gender identity refers to a person's inner sense of belonging to a particular gender, such as male or female. Everyone has a gender identity.

16. Children usually become aware of their gender identity early in life.

17. For some people, their gender identity does not align with the sex they are designated at birth. This lack of alignment can create significant distress for people with this experience and can be felt in children as young as 2 years old.

18. A person's gender identity (regardless of whether that identity matches other sex-related characteristics) is fixed, is not subject to voluntary control, cannot be voluntarily changed, and is not undermined or altered by the existence of other sex-related characteristics that do not align with it.

19. According to the American Psychiatric Association's Diagnostic & Statistical Manual of Mental Disorders ("DSM V"), "gender dysphoria" is the diagnostic term for the

condition where clinically significant distress results from the lack of congruence between a person's gender identity and the sex they are designated at birth. In order to be diagnosed with gender dysphoria, the incongruence must have persisted for at least six months and be accompanied by clinically significant distress or impairment in social, occupational, or other important areas of functioning.

20. Gender dysphoria is a serious medical condition that, if left untreated, can result in severe anxiety and depression, self-harm, and suicidality.¹

21. Before receiving treatment, many people with gender dysphoria have high rates of anxiety, depression, and suicidal ideation. I have seen in my patients that without appropriate treatment this distress impacts every aspect of life.

22. Attempted suicide rates in the transgender community are as high as 40%. The only treatment to avoid this serious harm is to recognize the gender identity of patients with gender dysphoria and follow appropriate treatment protocols to affirm gender identity and alleviate distress.

23. When appropriately treated, gender dysphoria is easily managed. I currently treat hundreds of transgender patients. All of my patients have suffered from persistent gender dysphoria, which has been alleviated through clinically appropriate treatment.

24. The Endocrine Society and the World Professional Association for Transgender Health have published widely accepted standards of care for treating gender dysphoria.² The

¹ Spack NP, Edwards-Leeper L, Feldmain HA, et al. Children and adolescents with gender identity disorder referred to a pediatric medical center. *Pediatrics*. 2012; 129(3):418-425. Olson KR, Durwood L, DeMeules M, McLaughlin KA. Mental health of transgender children who are supported in their identities. *Pediatrics*. 2016; 137:1-8.

² Hembree WC, et al. Endocrine treatment of gender-dysphoria/gender incongruent persons: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab* 2017; 102: 3869–3903;

precise treatment for gender dysphoria depends on each person's individualized need, and the medical standards of care differ depending on whether the treatment is for a pre-pubertal child, an adolescent, or an adult.

25. The medical treatment for gender dysphoria is to eliminate the clinically significant distress by helping a transgender person live in alignment with their gender identity. This treatment is sometimes referred to as "gender transition," "transition related care," or "gender affirming care." The American Academy of Pediatrics agrees that this care is safe, effective, and medically necessary treatment for the health and wellbeing of children and adolescents suffering from gender dysphoria.³

26. The Endocrine Society Guidelines were developed through rigorous scientific processes which "followed the approach recommended by the Grading of Recommendations, Assessment, Development, and Evaluation group, an international group with expertise in the development and implementation of evidence-based guidelines." The guidelines affirm that patients with gender dysphoria often must be treated with "a safe and effective hormone regimen that will (1) suppress endogenous sex hormone secretion determined by the person's genetic/gonadal sex and (2) maintain sex hormone levels within the normal range for the person's affirmed gender."

World Prof'l Ass'n for Transgender Health, Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People (7th Version, 2011), http://www.wpath.org/site_page.cfm?pk_association_webpage_menu=1351&pk_association_webpage=4655.

³ Rafferty J, Committee on Psychosocial Aspects of Child and Family Health, Committee on Adolescence and Section on Lesbian, Gay, Bisexual, and Transgender Health and Wellness, *Pediatrics* October 2018; 142(4): 2018-2162.

27. Before puberty, treatment does not include any drug or surgical intervention. For this group of patients, treatment is limited to “social transition,” which means allowing a transgender child to live and be socially recognized in accordance with their gender identity. This can include allowing children to wear clothing, to cut or grow their hair, to use names and pronouns, and to access restrooms and other sex-separated facilities and activities in line with their gender identity instead of the sex assigned to them at birth. Social transition is a critical part of treatment of patients with gender dysphoria of all ages and it is the only treatment for pre-pubertal children.

28. It undermines social transition – a critical part of gender dysphoria treatment – to force a person with gender dysphoria to live in a manner that does not align with the person’s gender identity. For example, requiring a girl who is transgender to use facilities or participate in single-sex activities for boys can be deeply harmful and disruptive to treatment. In the context of activities like athletics, which are typically separated by sex, I know from experience with my patients that it can be extremely harmful for transgender youth to be excluded from the team consistent with their gender identity.

29. For many transgender youth, going through endogenous puberty can cause extreme distress. Puberty blocking treatment allows transgender youth to avoid going through their endogenous puberty thereby avoiding the heightened gender dysphoria and permanent physical changes that puberty would cause.

30. Puberty blocking treatment works by pausing endogenous puberty at whatever stage it is at when the treatment begins. This has the impact of limiting the influence of a person’s endogenous hormones on the body. For example, after the initiation of puberty blocking

treatment, a girl who is transgender will experience none of the impacts of testosterone that would be typical if she underwent her full endogenous puberty.

31. When treating a transgender young person, when medically indicated, I prescribe puberty blocking treatment at the Tanner 2 stage of puberty. For girls who are transgender, this means that puberty is put on pause usually around the time that the patient has circulating testosterone at a level of 50 ng/dL or 1.735 nMol/L. A patient that undergoes puberty blocking treatment at this stage and then proceeds to gender-affirming hormone therapy will never have circulating testosterone above what is typical of girls who are not transgender.

32. Under the Endocrine Society Clinical Guidelines, once a transgender youth establishes further maturity and competence to make decisions about additional treatment, it may then be medically necessary and appropriate to provide gender-affirming hormone therapy to initiate puberty consistent with gender identity. For girls who are transgender this means administering both testosterone suppressing treatment as well as estrogen to initiate hormonal puberty consistent with the patient's female gender identity. For boys who are transgender this means administering testosterone.

33. Hormone therapy and social transition significantly change a person's physical appearance. For example, boys who are transgender treated with puberty blockers and gender affirming hormones will receive the same amount of testosterone during puberty that non-transgender boys generate with their testes. They will grow darker and thicker facial and body hair, experience fat distribution away from the hips, have decreased breast growth, and develop lower vocal pitch. Likewise, girls who are transgender and treated with puberty blockers and gender affirming hormones will receive the same amount of estrogen during puberty that non-

transgender girls generate endogenously. They will develop breast tissue, fat will be distributed to their hips, their skin will soften, and their vocal pitch will not deepen further.

34. Treatment for transgender youth is safe, effective, and essential for their well-being. My patients who receive medically appropriate hormone therapy and who are treated consistent with their gender identity in all aspects of life experience significant improvement in their health.

35. For many patients, social transition and hormone therapy are sufficient forms of treatment for gender dysphoria. Others also need one or more forms of surgical treatment to alleviate gender dysphoria. Transgender boys may receive chest reconstruction surgery as young as 16. Genital surgery for transgender women and men is not performed until the person has reached the age of at least 18. Genital surgery for transgender women can result in a vulva and vagina—external genitalia typical of women—as well as removal of the testes, which eliminates the need for medical testosterone suppression. Because surgery does not produce ovaries, transgender women who have had this form of surgery typically continue to need estrogen therapy.

36. Consistent with extensive research literature, my clinical experience with my patients has been that they suffer and experience worse health outcomes when they are ostracized from their peers through policies that exclude them from spaces and activities that other boys and girls are able to participate in consistent with gender identity.

SEX ASSIGNMENT AND BIOLOGICAL SEX CHARACTERISTICS

37. When a child is born, a sex designation is usually made based on the infant's externally visible genitals. This designation is then recorded and usually becomes the sex designation listed on the infant's birth certificate.

38. Usually, though not always, a person's gender identity aligns with the sex designation based on the person's genitals at birth.

39. For transgender people and people with differences of sex development (DSDs), however, there is not complete alignment between gender identity and physical sex-related characteristics.

40. Differences of sex development refer to the range of variations in which a person's sex-related characteristics do not all align in one direction. Some describe people with these variations as "intersex."

41. Sex-related characteristics include external genitalia, internal reproductive organs, gender identity, chromosomes, and secondary sex characteristics. These biological sex-related characteristics do not always align as completely male or completely female in a single individual. And none of these characteristics exists in a binary. As the Endocrine Society guidelines explain, the terms "[b]iological sex, biological male or female . . . are imprecise and should be avoided." Generally speaking, "[t]hese terms refer to physical aspects of maleness and femaleness [but] these may not be in line with each other (e.g., a person with XY chromosomes may have female-appearing genitalia)."⁴

⁴ Hembree, Wiley C., et al., Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline, J Clin Endocrinol Metab, Vol. 102, Issue 11, 1 November 2017, 3869–3903.; Berenbaum S., et al., Effects on gender identity of prenatal androgens and genital appearance: Evidence from girls with congenital adrenal hyperplasia. J Clin Endocrinol Metab 2003;88(3):1102-6; Dittmann R, et al., Congenital adrenal hyperplasia. I: Gender-related behavior and attitudes in female patients and sisters. Psychoneuroendocrinology 1990;15(5-6):401-20; Cohen-Kettenis P. Gender change in 46,XY persons with 5alpha-reductase-2 deficiency and 17beta-hydroxysteroid dehydrogenase-3 deficiency. Arch Sex Behav 2005;34(4):399-410; Reiner W, Gearhart J. Discordant sexual identity in some genetic males with cloacal exstrophy assigned to female sex at birth. N Engl J Med 2004;350(4):333-41.

42. Although we generally label infants as “male” or “female” based on observing their external genitalia at birth, external genitalia are not always clearly identifiable as typically male or typically female. And external genitalia do not account for the full spectrum of sex-related characteristics nor are they alone a proxy for how we understand sex.

43. In one out of every 1,000 live births, the infant’s genitals are not typically male or female.

44. For people with DSDs, sex assignment at birth can involve the evaluation of the chromosomes, the external genitalia, the internal genitalia, hormonal levels, and sometimes, specific genes. There are also cases in which the appearance of the external genitalia can change at puberty as well as variations in the appearance of secondary sex characteristics that may signal a difference in sex development in a person.

45. When designation of sex of an infant with a DSD is made at birth, that assignment is temporary until the individual can express their gender identity. In cases where the initial designation was incorrect, appropriate medical protocols instruct that the sex should be updated to align with the individual’s gender identity. Similarly, if the sex designation of an infant without a DSD turns out to be inconsistent with the individual’s gender identity, as for transgender people, the sex should be updated to align with the individual’s gender identity.

46. Where surgery has been done on children with DSDs before the child’s understanding and expression of their gender identity, significant distress can result. Many of these children have had to endure further surgeries to reverse earlier surgical intervention because their gender identity did not match the initial sex designation.

47. At least one out of every 300 people in the world has an intersex variation, meaning that the person's sex characteristics do not all align as typically male or typically female.

48. Some examples of these variations include:

- a. People with Complete Androgen Insensitivity (CAIS) have 46,XY chromosomes and internal testes that produce testosterone, but do not have the tissue receptors that respond to testosterone or other androgens. The body, therefore, does not develop a penis, thicker facial hair, or other secondary sex characteristics more commonly associated with men. At birth, based on the appearance of the external genitalia, people with CAIS are generally assigned female. If their testes are left in place, the body will convert the hormones into estrogen. Many do not find out they have XY chromosomes or testes until they do not start menstruating at the expected age.
- b. Androgen Insensitivity can also be partial (known as PAIS). People with PAIS have XY chromosomes, testes, and some (but still lower than typical) response to testosterone. They may be born with genitals that appear like a typical penis, a typical vulva, or somewhere in between.
- c. People with Swyer Syndrome have XY chromosomes and "streak" gonads (gonadal tissue that did not develop into testes or ovaries). Externally, a child with Swyer Syndrome usually develops a vulva. Because their gonads do not produce hormones, they will not develop most secondary sex characteristics without hormone treatment.

- d. People with Klinefelter Syndrome have 47,XXY chromosomes and internal and external genitalia typically associated with males, however, their testicles may have reduced testosterone production. This may lead to breast development, low muscle mass and body hair, and infertility.
- e. People with Turner Syndrome have 45,XO chromosomes, which means they have one fewer copy of the X chromosome than expected. In utero, they form sex characteristics typically associated with females, including internal structures like a uterus and fallopian tubes, but the ovaries may degenerate before birth (or in some cases, not until young adulthood), leading to an inability to make estrogen. Many people with Turner Syndrome will not go through puberty without hormone therapy.
- f. People with Mosaicism have different sets of chromosomes in different cells. Mosaic karyotypes happen as a result of atypical cell division early in embryonic development and could involve various combinations among XX, XY, XO, XXY, and other chromosome patterns. Configuration of gonadal tissue, genitals, and hormone production and response can all vary.
- g. People with ovotestes (sometimes known as Ovotesticular DSD) have gonads that contain both ovarian and testicular tissue. Their chromosomes may be XX, XY, or Mosaic. Genital appearance at birth can be male-typical, female-typical, or something else.
- h. Congenital Adrenal Hyperplasia (CAH) can occur in people with XX or XY chromosomes. People with CAH and 46,XX chromosomes have ovaries, a uterus, and a higher-than-typical production of androgens in utero that can

lead to the development of genital differences at birth – such as an enlarged clitoris that may look like a penis, or the lack of a vaginal opening. CAH can also cause the development of typically masculine features like increased muscle mass and body hair.

- i. People with 5-alpha reductase deficiency (5-ARD) have XY chromosomes, but they have an enzyme deficiency that inhibits conversion of testosterone to dihydrotestosterone (the active form of testosterone) to varying degrees. This can impact genital development, and at birth, people with 5-ARD may have genitals that appear female-typical, neither male-typical nor female-typical, or mostly male-typical with differences like hypospadias (where the urethra is located somewhere other than the tip of the penis). During puberty, hormonal changes allow them to make more dihydrotestosterone, causing the development of some secondary sex characteristics typically associated with males, as well as genital masculinization.

49. As the examples above underscore, from a medical perspective, chromosomes, reproductive anatomy, and endogenous testosterone alone do not determine a person's sex, nor does a single sex-related characteristic.

* * *

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on 5/21/2021


Deanna Adkins, MD